The Journal of the American Medical Association

Published under the Auspices of the Board of Trustees

VOL. LV, NO. 8 CHICAGO, ILLINOIS AUGUST 20, 1910

SOME ASPECTS OF THE MEDICAL CURRICULUM OF TO-DAY AND OF TO-MORROW

A. W. MEYER, M.D.

Professor of Human Anatomy, Leland Stanford, Jr., University

STANFORD UNIVERSITY, CAL.

That he who makes a prophecy risks his reputation, is an old adage. I accept its truth. However, only he who hath can lose. Moreover, it is not my purpose to suggest or to forecast an ideal curriculum, but simply to discuss certain aspects of present-day curricula in our stronger medical schools, and to call attention to changes which may be anticipated, or perhaps found advisable, even now. Others may be necessitated in the future—likely in the near future—while some have already been incorporated by a few of the leading medical schools of the country. It is indeed to be regretted that there is such a distance between the vanguard and the rear-guard of our medical schools, and that the curricula of many of them have undergone so few transitions outside of those necessitated by the very recent changes in requirements for admission. To be sure, change does not necessarily imply progress, but its absence surely suggests stagnation. This, I take it, applies to a certain extent to both the nature of the courses and the time devoted to them.

RIGID CURRICULA

With a few notable exceptions, one of the most prominent characteristics—yes, *the* most prominent characteristic—of the curricula of our medical schools is their rigidity. As a rule, the entire course is clearly marked out in every detail, not for one or for two years, but for four. In actual hours, this time varies from about three to seven thousand! Regardless of his previous training—or lack of it—the student is put into this educational strait-jacket from the first day of his four-years' course to the last, the strongest locking step with the the weakest. His tasks are meted out to him from 8 to 9 in the morning until 5 to 6 in the afternoon, for five or even for six days in the week.

That this is not an overstatement of the facts can easily be learned by a review of the schedules themselves, and of statistics available to everyone. Few hours indeed are left to the disposal of the student, in which to find himself, to develop his own inclination, and to exercise his own initiative, to say nothing of recreation. Under these conditions the able student must abandon—or at least defer, which is frequently equivalent—any scholarly ambitions which he may cherish, unless good fortune and good health enable him to avail himself of vacation days. In this connection it is frequently urged that the curriculum must meet the needs of the general practitioner. This is true, but it is not the whole truth, nor does it follow that the best general practitioners are produced by a trip-hammer process of education. The medical curriculum, it seems to me, can and should provide adequate training for the future general practitioner without depriving him of all opportunity to cultivate a proper scientific attitude toward his future work. I am well aware that not every country practitioner will make a Robert Koch, and that the exhausting humdrum of so-called practical routine drill, which sometimes unfortunately fills all the hours of the day and night, would never make a capable physician, much less a Koch. Yet it would be foolish to deny that the atmosphere in which the medical student lives and the opportunity given him for the cultivation of a proper attitude toward his work often determines his later career. The cultivation of this habit cannot be deferred until practice is begun. He who comes not naturally by it, or belongs not to the few who acquire it in their pre-medical work, must of necessity, then, be given the opportunity to acquire it during his medical training. For few indeed are the noble minds and resolute souls that can keep latent, with any hope of fruitful revival, scholarly ambitions dormant for a decade.

THE NEED OF DEVELOPING THE SCIENTIFIC SPIRIT

But the general practitioner has every need of being a progressive physician. He, above all, needs that attitude which can appreciate the value of a fact regardless of any obvious relationship to pressing life-problems or its immediate utilization, to preserve him from hopeless deterioration and inefficiency. It was said long ago, and often since, that "a little learning is a dangerous thing." A broad grasp of some subject—it matters little what—is essential for the acquirement of abiding interests. But how under the stress of the present-day curriculum with its increasing multiplicity of subjects can the student "drink deep"? Hence "taste not the Pierian spring" becomes his unconscious and willing or unwilling motto.

I take it that medical students can be unmade as well as made, and that to discover and to preserve the capable is as important as to eliminate the incapable. A heroic soul may survive. Poe did; Macaulay did; Darwin did; John Hunter would have, but demurred. Unfortunately not every medical student comes to us with the curiosity of childhood preserved, yet most men after all have something of what Lichtenberg called "das rastlose Ursachenthier" in them. To preserve and to cultivate these natural endowments is a high duty and sacred privilege, it seems to me. A fuller recognition of it would, I believe, result in inestimable benefit to mankind, and redound greatly to the glory of the medical profession. Perhaps this has received tacit recognition. Open recognition is needed, however. It is no excuse to say that recent progress has been so great and the subjects so many that this is impossible. We have sev-

eral notable examples in this country which have repeatedly and long since demonstrated that it is possible to have the medical curriculum follow closely in the wake of scientific progress and yet leave room for the play of individuality. Besides, will not subjects increase and progress continue? Assuredly, the present golden days in medicine will not be followed by dark ages again! And if so, this would be all the more reason for preventing *den rastlosen Ursachenmensch* from becoming *ein gleichgültiger Machinenmensch*.

ELECTIVE COURSES

Several of our leading medical schools have already reduced the required work, both prescribed and elective, to a minimum, and made all other work elective. Since the elective system in colleges and universities has been so fully and so ably discussed in recent years, a full discussion will here be avoided. Its dangers, I believe, can be safeguarded by the group system, and in other ways. By its introduction, well-trained and ambitious students will be given an opportunity to get more than an elementary knowledge of some subject. More thorough work is likely to result, because the student takes a more intelligent interest in his work, and is encouraged to think for himself. Departments of instruction must of necessity be better equipped in men and means to afford able students an opportunity. Hence departments barely able to afford minimum requirements will cease to exist, never having had any good *raison d'être*. For, as any tyro knows, a machine that always runs at its maximum is not an efficient or an economical one. Even the general practitioner will have better opportunities through the enrichment of the course by a number of elective and optional subjects. Courses that are not thorough will not be chosen save by the weaklings, and this again will bring its own reward to both students and professors. Individual departments will be more self-respecting, for the younger men on the staff, being assured an impartial hearing, now have every incentive to show their mettle. Being placed in direct and equal competition with all, they will often act as a powerful leaven in the whole department. These men will thus be given an opportunity to develop themselves, and to lay the foundation of a later career under the guidance of those whose disciples they are. And even if none of them prove a Huxley, yet the day is sure to come when, as Virchow said: "We are filled not alone with admiration for the hero, but at the same time with grateful recognition of the institution which planted the seed of high achievement in the soul of the youthful student."

Further criticisms—all of the friendliest kind, to be sure—are made with the greatest reserve, since they mostly concern matters outside of my own work. If, however, this imposes silence, then manifestly there can be no mutual consideration and cooperation, and hence no progress in this matter. If therefore I shall look boldly over the fence which bounds my own lane into my neighbor's field, I trust I shall not be regarded a trespasser.

PURE AND APPLIED SCIENCE

Pasteur, it will be recalled, said applied science was related to pure science as a tree to its fruit. One of the trees growing here and there which we must fertilize, water and prune, lest the command go forth, "Cut it down; why cumbereth it the ground?" is applied anatomy. There seems to be a good deal of confusion as to what applied anatomy is. In the past, tree and fruit have been confused, or even considered apart from each other. What the great master meant, I take it, was to foster well the tree, and the fruit would appear in due season. Perhaps it is this fine conception of science which has been responsible for the absence of special courses in applied anatomy in some of our best medical schools. The want in the past, it is clear, has been in the absence of those who fostered the tree, and in the multitude of those who, fixing their eyes solely on its golden fruit, let the neglected tree wither in sterile ground before them.

ANATOMY AND SURGERY

In some schools, applied anatomy seems to be the equivalent of or limited to surgical anatomy. In others, it is transformed into topographical anatomy, or even into operative surgery or is restricted to regional anatomy. The mere fact that so much confusion exists in regard to an old subject throws a strong and very interesting side-light on the whole matter. It also suggests that in many cases probably nothing very definite, or very indispensable even to the training of the general practitioner, was included. For if it be topographic anatomy it should be called so. If, on the contrary, it be surgical anatomy that is taught, then apparently only a portion of the field of applied anatomy is covered. Since, moreover, the recent graduate is not to do any major operation, there would seem to be no adequate reason why much that is at present given under surgical anatomy should be included at all in the required work of the curriculum.

It is interesting indeed that, at a time when surgeons are unanimous in declaring that it is wholly unjustifiable for any graduate in medicine to do major surgical work without prolonged and thorough hospital training, courses in operative surgery should still be insisted on! It is true that I am not fully informed as to the details of the subject-matter covered in many of the schools. But it is known what texts are used, and that all manner of major operations on the cadaver from the vertex to the soles are frequently done before, by, and with students who have not even finished their dissections. In other cases, work on animals is introduced, and students take turns in gaining facility in the use of hemostats, by catching severed vessels quickly. As to the care of the material, and the conditions under which this work is often done, I forbear to speak. Indeed, were the schools in which these things happen less prominent I would gladly forget it. Besides, I am not concerned with the character of the work, but with the work itself. Why should any student, it may be asked, spend the precious time of an overcrowded curriculum studying the details of difficult operations in surgery? Such operations, for example, as the removal of the Gasserian ganglion (lately called Gasserectomy—poor Gasser!) prostatectomy, lateral lithotomy, pyloroplasty, intestinal anastomoses, etc., etc. These all, and many others, are often included in surgical anatomy and operative surgery.

But no matter how ideal the conditions under which this work is done, or how ably it is taught, it certainly is not consistent or excusable to teach students these things, and then to condemn them for doing them. What wonder that after such teaching recent graduates attempt to perform all manner of major operations to their own sorrow, to the discredit of their teachers and to the harm of the public. It is difficult indeed to see why able teaching in human anatomy and in surgery would not make these special courses largely unnecessary. The trend of medical education is still in the

main a practical and not a scientific one. In this connection, it may pertinently be recalled that Helmholz and many since attribute the dominant position of Germany in medicine to the fact that the Germans had purely ideal aims for the cultivation of science without any immediate prospect of practical utility. We Americans, on the contrary, have often been credited, and rightly so, with being unusually quick to see the practical relations of facts—provided we knew of the facts—but have we been equally active or fortunate in the revelation of those facts? From these things, and from the examples of certain excellent schools, one is compelled to conclude that it would be in the interests of all to eliminate a large part or the whole of these courses, or at least to confine them to the few who become surgeons, and thus withhold such knowledge from many a young physician who might be tempted to take a chance.

TOXICOLOGY

If I have correctly understood those fully competent to speak, most graduates from college and university courses have not had sufficient training in chemistry to enable them to take up the subject of toxicology to advantage. This, to be sure, is no reflection on these institutions. If toxicology belongs to higher analytical chemistry, it must be true that a thorough training in analytical chemistry itself is a *sine qua non* for entrance on toxicologic work. I am well aware, of course, that toxicology as given in most medical schools is nothing so self-respecting or so advanced as this. Is it really toxicology, then, and should it be given apart from the other chemical work in the medical course? I do not presume to answer this, though I am well aware how able teachers in both chemistry and pharmacology regard the matter. Their opinions are available. It must be evident to everyone, though, that if toxicology, so-called, were eliminated from the medical curriculum, some future practitioners might be deterred from supposing themselves capable of acting as expert analysts in medicolegal cases. Almost every week sees some overzealous and benighted doctor of medicine making a spectacle of himself and of his profession before a court of law and before the public. While the elimination of toxicology from the list of required work would not change human nature, it might and probably would change the attitude of many a general practitioner to this matter and eliminate it from licensure tests.

SLIGHTED SUBJECTS

If the introduction of the elective principle into the curriculum be thought unwise, because of the lack of maturity and preparation on the part of students, or for other reasons, it surely would not be difficult to find substitutes for any of the above-suggested eliminations. Among the subjects of direct and material importance to the general practitioner are at least two which, according to authorities in them, have so far not received adequate attention. These are pediatrics and psychiatry. Material for instruction in these subjects is available everywhere. What is needed is the correlation of the facilities of existing institutions and the erection of special hospitals or hospital wards for childrens' diseases and particularly for mental cases.

The equipment of childrens' wards and of wards for contagious cases in childrens' hospitals would afford every medical student an opportunity to obtain first-hand knowledge of the diseases of early infancy and of the care of young children. The training so gained, in addition to that obtained in the maternity ward, and dispensary, would equip the young physician in a way which is now largely impossible. To-day, most graduates go into practice without adequate knowledge of contagious diseases in general. For the lack of hospitals for contagious diseases the attitude of the public is no doubt partly responsible, but what can be more unfortunate or embarassing in the career of the beginner than to see measles, chicken-pox, scarlet fever, diphtheria, etc., for the first time in his life as a student or practitioner of medicine? Unless he is tactful, mother or nurse may correct his diagnosis and seriously handicap him at the very start.

Modern civilization no longer tolerates the *tortura insomnia*, and many other relics of past barbarity, in the treatment—or what the future will call mistreatment—of mental cases, but contents itself chiefly with benevolent incarceration. Surely much less could not be done in this day. To immure the helpless patient and leave him to his own devices, or those of unskilled and untrained attendants makes not for progress. With the doors of the general hospitals barred against him, nothing but the private sanitarium remains for the patient with incipient mental disease. Under present conditions, there is written over the doors of many of these, as well as over the doors of many of our asylums, "He who enters here leaves hope behind." This would be less pathetic were it less true. And until the general hospital will admit such patients as readily as it does patients with the acute infectious diseases, the medical student at best will likely be compelled to begin his career with but a text-book knowledge of them. As a result, he is almost sure to overlook impending danger and fail to recognize the actual conditions until the catastrophe breaks on his patient.

These things have been said with some reluctance, and with full appreciation of the services of the many devoted and unselfish men, whose all too busy lives are spent in the noblest of causes. Any one who knows what is done at the present day, however, and realizes what could be done, and is done elsewhere, for the mentally afflicted, cannot help but feel the injustice and in many respects the hopelessness of the present situation.

NEW SUBJECTS

I am also persuaded that the near future will see the relegation of pharmacognosy to the pharmaceutical schedule, more emphasis placed on physiology, on psychology, and some aspects of therapeutics, and the correlation of therapeutics and pharmacology and that instruction in pathologic physiology, preventive medicine and the allied subjects of sanitary science, public health, hygiene, and vital statistics will be given. To enlarge on the necessity for these in the curriculum for the general practitioner, seems unnecessary. Moreover, it is not my purpose to do more than to call attention to their frequent absence.

The devotion of more time to some of these subjects, and the introduction of others, will greatly enrich and strengthen the medical curriculum. It will widen the horizon and broaden the grasp of the general practitioner, as well as of the future investigator. I know full well that to introduce these things will require very material additions to both staff and equipment in many cases—for no instruction is better than faulty instruction. And here may it not be said with entire courtesy that retrenchment in some of the recent expansions would seem advisable on the part of those colleges and universities which have assumed responsibility for the

conduct of a medical school, rather than to jeopardize the efficiency and to limit the usefulness of the future practitioner of medicine by a false economy? Surely this matter is too serious a one for the student, for the public and for the institutions concerned to be regarded lightly.

IMPROVEMENT ALREADY SECURED

Besides, our beacon-lights of medical education seem as yet unable to reach the eyes of all. To be sure, the progress made in the last decade is cause for much congratulation. The medical sciences have found a firm foundation, and further differentiation has already begun in clinical medicine. Moreover, the higher standards in medical education adopted through the combined efforts of the Council on Education of the American Medical Association, the Association of American Medical Colleges, state boards, and the Carnegie Foundation for the Advancement of Teaching, bid fair to have the most far-reaching and permanent effects. For, although schools with the highest standards have long exerted the best of influences, their splendid example unfortunately needed the reinforcement of publicity. They were often said to train theorists, unpractical men, good enough for teaching, while the pride of the rest was the training of the general practitioner. For him, low standards of admission and crude equipment were supposed to be sufficient. The fancied need of the general practitioner, or even the needs of various parts of the country for general practitioners of medicine, have often served as an excuse for wholly unjustifiable conditions. Against these assumptions, and against the separation of medical schools from universities, Brücke raised his voice long ago, and his words, though often unheeded, are still true.

THINGS DESIRED

Publicity of the facts has done much, and will do more. The forthcoming report of the Carnegie Foundation will no doubt mark an epoch in medical education. It is heroic treatment this, but the results will stand as an enduring monument to the credit of the medical profession with whom the movement for reform started. That this movement shall not cease till double standards in state boards, unjustifiable conditions within our schools, and many other things, are corrected, is the desire of every one who has the best interests of medical education at heart. From such, and from no other motives, the above criticisms and suggestions were made by one who is willing to sit at the feet of those who have grown great and gray in the service of medicine in this, or in any other day.

THE IMPORTANCE OF BEDSIDE TEACHING

FRANK W. HORNBROOK, M.D.
BOSTON

In this day when laboratory methods are so strongly emphasized and practiced and when there is such a surplus of theoretical teaching, let me call the attention of the medical profession, and especially the teaching branch of the profession, to bedside teaching. Teaching medical students at the bedside, while they are still in school, how to recognize a patient who is really seriously sick from one who is only mildly ill; how to recognize what the patient is suffering from; how to prognosticate as to recovery and what are the practical, the sane methods of treatment in each individual case as learned from the actual case by individual examination—this form of teaching, which is of the utmost value, is not carried out in any of the first-class medical schools with which I am familiar.

I would urge the great value and the absolute importance to medical students of continuous and painstaking observations on the sick at the bedside, the careful examination, complete in detail, and the thoughtful, serious effort at forming conclusions when at the side of patients who are confined to their beds because of the gravity of their afflictions.

When a medical student is given his degree, it certifies that he is prepared to practice medicine and surgery, but he is not; he must spend two years or more in a large hospital or become the assistant of some busy practitioner before he is even fairly well fitted to practice his profession, because his medical work at the school has been too theoretical; because he has not seen and handled any really sick people to speak of; he has not had anything like enough of individual bedside teaching.

Work in the out-patient departments, examining one or two patients in the hospitals and writing theses on them, followed with discussions before the class, case teaching from printed slips, occasionally being called down from the amphitheater to feel a pulse, to palpate a tumor, to listen to a heart, to examine reflexes—these are valuable, but such opportunities to handle the living patients are handed out in homeopathic doses, and it is for more bedside opportunities for the medical student that I am pleading. It is of small value to look at a patient from an amphitheater and listen to a discourse, as compared to the value of having all the students divided into small groups, by means of small sections, personally studying and handling the patients.

It is not enough even to stand at the bedside with a small number of students and an instructor and listen to him talk and watch him examine, unless the individual student examines himself, not only once but many times during the course of the disease. As an illustration, the student should have abundant opportunities for feeling pulses in all kinds of sickness and in the various changes of sickness; he should learn at the bedside the significance of those changes through observation and he should after open discussion with a wise and sympathetic teacher learn to form careful conclusions; to administer himself the remedies determined on in desperate cases as well as mild cases, and to stay at the bedside and observe the results of such treatment. He should get up in the night and go to the hospital to observe changes in patients, and while there he should feel the pulse, observe temperature, examine heart, lungs, abdomen, urine, nervous systems, general appearance, whether that patient is suffering from sepsis, cardiac failure, hemorrhage, renal deficiency shock, etc., and the lessons thus learned at the bedside are not easily forgotten.

Such teaching as this I positively know is needed badly. It means much more inconvenience to teacher, student and patient, but I am certain it is worth it. We should not stop at this extra inconvenience if it will make better and safer servants of the sick. With tact and good management in the distribution of cases there would be little more objection from patients, and with the advent of university hospitals and students living near by, such bedside teaching could be carried out.

We can say that the hospital internship solves the question; but a large percentage of medical students on graduation do not see their way clear to spend one or two years in a hospital, and besides there are nothing like

as many hospital appointments that are worth anything as there are medical graduates. In addition to this, the diploma says that the graduate is prepared to practice medicine at the time it is issued; not after he has had two years of hospital service.

Laboratory teaching is excellent; it lays a broad and scientific foundation, but let us have more actual bedside teaching; let us give the medical students a personal acquaintance with the sick and the dying; let them handle such patients with all their faculties and senses open, stimulated through a wise teacher, and we shall make a distinct and practical advance in the teaching of young men to take care of those who are sick and to bring back now and then one who is dying.

71 Marlborough Street.

OPHTHALMIA NODOSA OR CATERPILLAR-HAIR OPHTHALMIA

WITH REPORT OF A CASE *

WALTER R. PARKER, B.S., M.D.
Professor of Ophthalmology, University of Michigan
DETROIT, MICH.

By ophthalmia nodosa is understood an affection of the eye caused by the entrance into the tissues of the eyeball of the hair of certain varieties of caterpillar. It was first described by Pagenstecher[1] in 1883 as "caterpillar-hair ophthalmia," later by Wagenmann[2] as "pseudotuberculosis," and by Saemisch as "ophthalmia nodosa." It shows a tendency to form tubercle-like structure, often showing nodules appearing singly or in crops, progressing mostly with exacerbation and remissions. The patient does not always give a history of caterpillar contact, the diagnosis being made with the aid of the microscope.

We are indebted for studies on this subject to Baas,[3] Wagenmann,[2] Hillemann,[4] Kruger,[5] Lawford,[6] Stargardt,[7] de Schweinitz and Shumway,[8] Teutschlaender[9] and others, and for an analysis of the literature to Ginsberg,[10] Greeff,[11] and Parsons.[12]

The disease is most common among those who work in the woods and fields. In most cases, the caterpillar falls or is thrown into the eye of the patient, or more rarely the infection occurs through free hairs, as in the case here reported. Ralzeburg pointed out the varying susceptibility of different persons, and Teutschlaender[9] proved by experiments on himself that the skin varies as to susceptibility according to its thickness. He obtained a marked reaction on the thin skin of his forearm, but practically none from the thicker skin of the finger, the same caterpillar being used in both tests. The hairs have been demonstrated in the conjunctiva, episclera, sclera, cornea, iris and in one case in the choroid.

As a rule, the first symptoms appear soon after the trauma, although in exceptional cases no symptoms appear until the nodules are present. When the cornea is involved the initial symptoms are often most severe. They consist of the sensation of a foreign body in the eye, itching or burning, with lacrimation and photophobia, all being heightened by rubbing. These symptoms are followed by swelling of the lid, pericorneal injection and edema. There is usually loss of corneal epithelium, either through wounding by the caterpillar, or through the rubbing by the patient. The initial stage continues as long as the hairs cause irritation, either mechanically or chemically, or until the hairs penetrate the tissues and become encapsulated, which occurs from the fourth to the eighth day (Teutschlaender[9]). At the end of the second week or the beginning of the third, the first nodule or nodules appear, thus ushering in the typical stage of ophthalmia nodosa. Should the hairs be eliminated the disease may be aborted without developing a nodular formation.

Karsten in 1848, as quoted by Leydig, demonstrated the fact that the irritating variety of caterpillar (*Saturna*) has skin glands which discharge directly into the wide canal of the chitin integument, which canal passes into the base of the hair, while the non-irritating varieties (*Vanessa, Acraca, Argymus*) do not have these glands. In 1855, Leydig confirmed the work of Karsten and demonstrated the presence of the gland in the *Bombyx rubi* (*Barenraupe*).

Other explanations than the Karsten-Leydig medullary poison theory have been advanced to explain the peculiar symptoms that follow the entrance of hairs of certain caterpillars into the tissues, among which are the Gossen-Fabre varnish theory, namely, that the poison is a by-product of the organic metabolism of the caterpillar and adheres to the outside as pollution; and the Stargardt[7] resorption theory, namely, that the toxin is a product resulting from decomposition of the chitin which the absorption of the hair brings about. The possibility of bacterial infection as the exciting cause has been disproved by negative results obtained by Stargardt,[7] by de Schweinitz and Shumway,[8] who transplanted a piece of conjunctiva rich in nodules into the anterior chamber of a rabbit; by the results of the tuberculin injections of Kruger[5] and Becker;[13] and also by the microscopic examination of the excised material by Wagenmann,[2] Becker,[13] Hillemann,[4] Hanke,[14] Bostrom,[15] de Schweinitz and Shumway,[8] Stargardt,[7] and Teutschlaender.[9] The offending hair appears to be sterile (possibly owing to the disinfecting action of the contained formic acid as suggested by Mitschenkoff)

---

* Read in the Section on Ophthalmology of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

1. Pagenstecher: Interessante Präparate von Eindringen feiner Raupenhaare in die Conjunctiva und die Iris mit daran sich bildenden tuberkelartigen Knötchen, Klin. Monatsbl. f. Augenh., 1883, No. 21; (Beilageheft, Sitzungsb. des Heidelberger Ophth.-Cong. p. 176.)
2. Wagenmann (Göttingen): Ueber pseudotuberculöse Entzündung der Conjunctiva und Iris durch Raupenhaare, Arch. f. Ophth. (Graefe's), 1890, xxxvi, 126.
3. Bass: Toxische Entzündung der Conjunctiva (durch Prozessionsraupen), Klin. Monatsbl. f. Augenh., 1888, No. 26.
4. Hillemann (Bonn): Ueber Augenentzündungen durch Eindringen von Raupenhaaren. Ophthalmia nodosa (Saemisch), Deutsch. med. Wchnschr., 1894, No. 24.
5. Krüger (Bonn): Ophthalmia nodosa, durch Eingedrungene Raupenhaare verursacht, Arch. f. Augenh. (Knapp-Schweigger's), 1892, No. 24; Ophthalia nodosa; Ein weiterer Beitrag zur Kenntnis der Raupenhaarerkrankungen der Auges, ibid., 1892, No. 25.
6. Lawford: Ophthalmia nodosa, Ophth. Soc. U. Kingdom, 1895; abstr. in Centralbl. f. Augenh. (Hirschberg's), 1895, p. 413.
7. Stargardt (Kiel-Zurich): Ueber Pseudotuberculose und gutartige Tuberculose des Auges, mit besonderer Berücksichtigung der binocularmikroskopischen Untersuchungsmethode, Arch. f. Ophth. (von Graefe's), 1903, lv, 469.
8. de Schweinitz and Shumway: Conjunctivitis Nodosa with Histologic Examination, Univ. Pennsylvania Med. Bull., November, 1904, xvii.
9. Teutschlaender: Raupenhaar Ophthalmia, Arch. f. Augenh., 1908, lxi, No. 2.
10. Grundriss der pathologischen Histologie der Auges, Berlin, 1903, p. 68.
11. Pathologische Anatomie des Auges, p. 70.
12. Pathology of the Eye, London, 1904, Part 1, i, 84.
13. Becker: Ein Fall von Ophth. Pseudotuberculosa, hervorgerufen durch das Eindringen von Raupenhaaren, Berl. klin. Wchnschr., 1892, No. 22.
14. Hanke (Vienna): Ueber Ophthalmia nodosa, Augenerkrankung durch Raupenhaare, Beitr. z. Augenh. (Deutschmann's), 1896, xxiii, 10.
15. Boström: Casuistische Beiträge zur Kenntniss der epibulbaren Neubildungen, Giessen, 1897.

and the symptom-complex cannot be explained on the theory of an accompanying bacterial infection.

The caterpillar hairs are more or less pointed, tubular structures, which are either needle-like and rigid or worm-like and flexible. Their surface is either smooth or covered with barbs or spinules. They are composed of a chitinous substance, which surrounds the medullary canal. Into this canal the secretion of the gland is emptied. The hairs are very numerous and easily detached. Owing to the fact that the barbs all point upward the hair must enter the tissues base foremost.

Formic acid, which plays such an important part in insect poison, has been proved to be present in the gland secretion (Fabre). When the hair enters the tissues more or less toxin escapes from the medullary canal, and the initial symptoms are produced. The course is chronic—may cover months or years. According to Teutschlaender,[9] the latent period, interrupted by acute exacerbations, are so characteristic of the disease that he agrees with Meixner[16] that it is almost pathognomonic for ophthalmia nodosa. Recurrences have been reported at periods of time varying from four days (Natanson's[17] case) to over three years (Stargardt's[7] case). The patient in the latter case had the first recurrence one month after the time of infection, the third attack three years later, and the fourth after another month. According to different theories, the recurrences may be owing to a new infection; the wandering of a non-encapsulated hair; or to chemical action. Hillemann,[4] Lawford[6] and Teutschlaender[9] all agree that from an analysis of the clinical observations it would seem that in addition to the mechanical irritant another agent must be present, which gives to the clinical history its peculiarity, and they believe that the idea of a chemical toxic agent best explains not only the clinical manifestations of the initial attack, but is the cause of the recurrent attacks as well. The details of the process as given by Teutschlaender[9] are as follows:

The initial inflammation subsides, some of the hairs being eliminated, while those remaining behind have their mechanico-chemical irritation hindered through the process of infiltration and encapsulation. But so long as the foreign body or its poisonous substance have not been absorbed or eliminated the process is not permanently stopped. Either there is an intensification of the poison, or else the protection of the tissue is weakened. The tissue changes, which during the inflammatory period caused a halt in the work of the etiologic factor, undergo a certain metamorphosis during the latent period. The edema and cell infiltration disappear and the protection is lessened. At the same time changes are taking place in the hair. The chitin-layer is being absorbed and larger openings in the medullary canal allow the poison to escape and the chemical agents to accumulate at the inner part of the nodule. When a sufficient amount has accumulated, or the protection is weakened or gone, an irritation is set up and the reaction appears, resulting in a recurrence of the initial process. This cycle goes on until the poison has all been carried off, when the hair remains in the tissue as an unirritating foreign body.

While the clinical picture of ophthalmia nodosa is characteristic, the anatomic changes are not. The first change is an intensely active hyperemia soon associated with round-celled infiltration which appears especially in the direction of the foreign body and is accompanied by more or less edema. Those hairs which are superficially situated and circumscribed by the cell infiltration may be pushed out when healing follows. The mechanico-chemical action calls forth a cell diapedesis and proliferation until a sufficiently protecting wall is built up. While in the early stage of the nodule formation round-celled leucocytes are the predominating element, later epithelioid and giant cells are added.

The conjunctiva is the most frequent site of infection and it is here that the typical nodules so suggestive of tubercle are formed. The number of nodules varies greatly—in one case twenty-seven were demonstrated (de Schweinitz and Shumway[8]). They are grayish-yellow in color and between them there is marked congestion of the conjunctival and episcleral vessels.

In the cornea, the pericorneal injection appears almost immediately, and on the third day the infiltration is noticeable. While the areas of infiltration are well defined, they are not elevated as is the case in the conjunctiva and iris. This is owing to the fact that the cornea is non-vascular (Teutschlaender[9]).

The iris is far more frequently affected than the cornea. The hair perforates the cornea either through the force of the fall of the caterpillar or through the rubbing of the eye by the patient. With one part still sticking in the cornea, the hair may bridge the anterior chamber and by means of its spinules become attached to the iris, which by its movements in dilating and contracting may draw the hair away from the cornea. At the point of entrance of the hair into the iris hyperemia and swelling occur, followed by cell infiltration, resulting in the formation of a nodule. In most cases the reaction is not severe enough to jeopardize the vision, although in one reported case an iridochorioiditis plastica followed with blocking of the pupil, and in another the eyeball shrunk, resulting in phthisis bulbi.

One patient (Kruger's), as observed by Reis,[18] twelve years after the occurrence of the infection, showed seven scars in the conjunctiva, one nodule in the episclera (from which a well-preserved hair was extracted), an opacity in the cornea (from which a hair was removed), and in the chorioid a Y-shaped streak of chorioidal degeneration bordered with pigment with a greenish reflex at one extremity, which Reis thought probably was a hair. The following report is of my case:

Patient.—H. S., male, aged 33, first came under observation in April, 1906, with the history of having had recurrent attacks of very severe pain and redness in the right eye at intervals of about 30 days, from October, 1905. The first attack came on with excessive lacrimation, severe pain and some swelling. After 3 or 4 days the more severe symptoms disappeared, though the eye remained irritable throughout the entire course of the affection. At this time all the history I was able to obtain was negative. Later, however, after 3 months' unsuccessful treatment, when asked if he had had anything to do with caterpillars, he replied: "Last October the caterpillars were so thick in our apple trees we had to burn them out." On closer inquiry, it was found that his first attack came on immediately after the trees had been freed of the caterpillars, but the patient himself did not associate in any way the work done on the trees with the disturbance in his eye. There was no history of having been struck in the eye, so the infection must have been from the free hairs.

Examination.—The eyelid was slightly swollen and the conjunctiva congested. With oblique illumination there could be plainly seen 5 areas of infiltration, situated in the superficial layers of the cornea. One was 1 by 3 mm. in size, running horizontally at the level of the upper pupillary margin. The other four, from 1 to 2 mm. in diameter, were situated in the

16. Meixner: Ein Beitrag zur Kenntniss der Raupenhaar-Ophthalmie, Inaug.-Diss., Erlangen, 1901.

17. Natanson (Moskau): Bindehaut- und Hornhautentzündung in Folge Verletzung des Auges durch eine behaarte Raupe, Klin. Monatsbl. f. Augenh., 1897, xxxv.

18. Reis: Ueber eine eigenthümliche Aderhautveränderung nach Ophthalmia nodosa, Arch. f. Augenh., 1902, xlii, 250.

Number.	Reported by	Date.	Anamnesis of Caterpillar.	Species.	Hair Demonstrated.	Tissues Affected.	Nodules.	Time Between Accident and First Consultation.	Recurrences.	Month of Injury.
1	Pagenstecher[1]	1883	No.	Not determined.	Yes	Conjunctiva and iris.	26 nodules	5-6 months.	4 weeks	August or September.
2	Bass[3]	1888	Yes.	*Cnethocampo processionea.*	Yes.	Conjunctiva.	None.	Few days.	None.	July.
3	Bass[3]		Yes.	*Cnethocampo processionea.*	No.	Conjunctiva	None.	Few days.	None.	July.
4	Weiss[19]	1889	Yes.	*Bombyx pini.*	Yes.	Iris	Several.	6 months.	4 months.	June.
5	Wagenmann[2]	1890	Yes.	*Bombyx pini.*	Yes.	Conjunctiva and iris.	Conjunctiva, 2-3 nodules; iris, 2 nodules.	4 months.	None.	September.
6	E. Kruger[5]	1891 and 1892	Yes.	*Bombyx rubi.*	Yes.	Cornea, iris, conjunctiva.	Cornea, several; iris, several; conjunctiva, 12.	4 months.	6 months.	September.
7	E. Kruger[5]		No.	*Bombyx rubi.*	Yes.	Conjunctiva and iris.	Not stated.	2 months.	None.	September
8	E. Kruger[5]		Yes	*Bombyx rubi.*	Yes.	Conjunctiva, iris, cornea.	Conjunctiva, many; iris, 1 nodule; cornea, 1 hair.	6 months.	None.	September.
9	Becker[13]	1892	Yes.	*Bombyx rubi* or *Bombyx pini.*	Yes.	Conjunctiva and iris.	Conjunctiva, many nodules; iris, several.	3 months.	None.	September or October.
10	Hillemann[4]	1894	Yes.	*Bombyx rubi,* probably.	Yes.	Conjunctiva, subconjunctiva, cornea and iris.	Conjunctiva, 3 nodules; subconjunctiva, 3 nodules; iris, 2 nodules.	5 months.	None.	August.
11	Hummelsheim[19]	1894	Yes.	Not determined.	Yes.	Conjunctiva, iris and cornea.	Conjunctiva, 14 nodules; iris, 3 nodules.	3-4 weeks.	6 weeks	October.
12	Störmann[20]	1894	Yes.	Not determined.	Not stated.	Conjunctiva and iris.	Several.	Same day.	None.	Not stated.
13	Elsching[21]	1895	Yes.	*Cnethocampo processionea,* probably.	Yes.	Conjunctiva and cornea.	Cornea, several vesicles containing hair.	4 hours.	None.	June.
14	J. B. Lawford[6]	1895	Yes.	*Bombyx rubi.*	Yes.	Conjunctiva.	Several.	2 weeks.	4 months.	September
15	Hanke[14]	1896	Yes.	*Bombyx rubi.*	Yes.	Conjunctiva and cornea.	2 in lower fornix, several on bulbar conjunctiva.	Several days.	Recurred in 10 days; again in 2 weeks.	October
16	Boström[15]	1897	No.	Not determined.	Yes	Cornea, scleral margin.	Limbus, 1 large nodule.	2 weeks.	None.	Not stated.
17	Vossius[22]	1897	No.	Not determined.	Yes.	Sclera	1 large nodule.	Not stated.	None.	Not stated.
18	Knapp, Geo.[23*]	1897	Yes.	Not determined.	Yes.	Episclera, iris and cornea.	Iris, 1 nodule; episclera, 3 nodules; cornea, infiltrated.	Several days.	Repeated attacks for 3 months.	June.
19	Knapp, Geo[23]		No.	Not determined.	Yes.	Ocular conjunctiva.	3 nodules	2 weeks.		Sept.
20	Knapp, Geo[23]		Yes.	Not determined.	Yes.	Ocular conjunctiva and cornea.	Conjunctiva, 4 hairs; cornea, 2 hairs.	2 days	None.	September.
21	Colburn[24]	1897	Not stated.	Not determined.	Yes.	Conjunctiva, cornea and anterior chamber.	Conjunctiva, 1 hair; cornea, 1 hair; anterior chamber, 1 hair.	Not stated.	None.	Not stated.
22	Nathanson[17]	1897	Yes.	Not determined.	No.	Cornea and conjunctiva.	Conjunctiva, 7 nodules; cornea, vesicles.	1 day.	Recurred in 4 days; again in 10 days.	July.
23	Bayer[25]	1900	Yes	Not determined.	Yes.	Cornea and iris	Cornea, 3 nodules; iris, several.	Some days.	None.	Not stated.
24	Reis, W.[19]	1900	No	Not determined.	Yes.	Conjunctiva, cornea, iris, episclera and sclera.	14 nodules; 3 in iris.	6 weeks.	1 week	July.
25	Meixner[16]	1901	Yes	Not determined.	Yes.	Conjunctiva, bulbi and iris	Several nodules.	40 days.	Recurred	September.
26	Denig[26]	1901	Yes	Spinning *Bombycina (Orgyia pudibunda.)*	Yes.	Conjunctiva.	Several vesicles.	1 month.	None.	July.
27	Stocké[27]	1902	Yes	Not determined.	No.	Conjunctiva	1 pea-sized vesicle	1 or 2 days.	None.	Not stated.
28	Reis, W.[18*]	1902	Yes	*Bombyx rubi.*	Yes.	Conjunctiva, iris, cornea, episclera, chorioid.	Episclera, 1 nodule; conjunctiva, 7 nodules; cornea, 1 hair; chorioid, 1 hair.			
29	Stargardt[7]	1903	Yes	Not determined.	Yes.	Conjunctiva, iris, sclera and cornea.	Conjunctiva, many nodules; cornea, hair.	2 months.	1 month; 1 year; 1 month later.	May.
30	Stargardt[7]	1903	No.	Not determined.	Yes.	Iris and cornea	Iris, 1 nodule.	5-6 weeks	10 days	Feb.
31	Stargardt[7]		Yes.	Not determined.	Yes.	Cornea.	Cornea, hair; no nodules.	Several days.	None.	August.
32	Stargardt[7]		Yes.	Not determined.	Yes.	Cornea.	Cornea, hair	2 days	None.	August.
33	de Schweinitz and Shumway[8]	1904	No.	*Spilosoma virginica (Bombyx).*	Yes.	Conjunctiva.	27 nodules.	Few days.	None.	July.
34	Valude[28]	1904	Yes.	Not determined.	Yes.	Cornea.	Several.	3 months.	None.	Dec.
35	Solva[29]	1905	Yes.	Not determined.	No.	Cornea and iris	Cornea, yellowish ulcers.	Not stated.	4 months.	Not stated.
36	Teutschlaender[9]	1908	Yes.	*Bombyx rubi.*	Yes.	Iris and conjunctiva.	Conjunctiva, many; iris several.	2½ months.	5 weeks	September.
37	Marlow[30]	1910	Yes.	Not determined.	Yes.	Conjunctiva and sclera.	6 nodules.	3 months	None.	September.
38	Parker, W. R	1910	No	*Bombyx rubi.*	Yes.	Cornea.	5 nodules.	6 months.	3, monthly.	October.

* Kruger's case reported 12 years later. It is not included in the summary as a separate case.

19. Reis (Bonn): Ein neuer Fall von Ophthalmia nodosa (Saemisch), Klin. Monatsbl. f. Augenh., 1900; Hummelsheim's case is mentioned in detail. This case was treated in Bonn in 1894, and reported in the publications of Niederrheinischen Gesellschaft für Natur- und Heilkunde and is only shortly referred to in Centralbl. f. Augenh. (Hirschberg's).

20. Stürmann: Ueber Entzündungen insbesondere Augenentzündungen, hervorgerufen durch Raupenhaare, Inaug.-Diss., Berlin, 1894.

21. Elschnig (Graz): Augenentzündung durch Eindringen von Raupenhaaren (Keratitis punctata superficialis), Klin. Monatsbl. f. Augenh., 1895, xxxiii.

22. Vossius: Ueber die durch Raupenhaare bedingten Augenaffectionen, Ztschr. f. pract. Aerzte, 1897, No. 6. p. 429.

23. Knapp: Ophthalmia nodosa, Am. Jour. Ophth., 1897, p. 247.

24. Colburn: Case reported in the discussion of Dr. Knapp's paper, Am. Jour. Ophth., 1897, xiv, 252.

25. Bayer: Ein Fall von Raupenhaar-Ophthalmie (Ophth. nod. Saemisch), München. med. Wchnschr., 1900, p. 730.

26. Denig: New York Med. Monatsch., October, 1901, xiii, 449.

27. Stocke: Augenentzündung durch Raupen, Ophth. Klin., 1902, No. 1.

28. Valude: Ophthalmia Nodosa. Ann. d'Ocul., March, 1905, p. 80.

29. Solva: Un Cas d'ophthalmia nodosa, Dauphiné méd., 1905, xxix, 337.

30. Marlow: Report of a Case of Ophthalmia Nodosa, Arch. Ophth., April, 1910.

upper third of the cornea about midway between the pupillary margin and the limbus. The epithelial layer was intact, the infiltrated area apparently involving the basement membrane. The cornea between the areas of infiltration was clear except immediately adjoining the opacities where it was slightly clouded.

Treatment.—When I first saw the patient he was not suffering severely, and the possibility of caterpillar hairs being the etiologic factor did not occur to me. A careful examination did not reveal the presence of the hair, but after seeing the man in one of his acute attacks when the pain was severe, photophobia intense and the pericorneal injection marked, and the cornea had become striped about the large area of infiltration, I determined to curette the indurated areas. From the scrapings I recovered the small hair shown in Figure 1, eight months after the first attack.

Fig. 1.—Photomicrograph of hair removed from eye of author's patient. ×62.

Species of Caterpillar.—In September, I asked the patient to bring me a caterpillar like those he burned out of the trees the year before. This he did, and the hair shown in Figure 2 was taken from the specimen which was classified as the *Bombyx rubi.*

Result of Treatment.—In a comparatively short time the patient was well, although some thin scars were left in the cornea at the site where the hairs were removed. As none of the scars were central his vision was unimpaired.

Fig. 2.—Normal hair of caterpillar. ×31.

In the accompanying table the cases of ophthalmia nodosa are arranged chronologically. The table contains, so far as I am able to determine, all the accepted cases reported to this date.

In a majority of cases there is a history of injury to the eye by a caterpillar; in the absence of this history there is one of sudden onset of the symptoms, consisting of pain, more or less severe, much photophobia and lacrimation. These symptoms tend to subside after a few days, but do not entirely disappear. In the course of a few weeks an exacerbation of all the symptoms occurs. The time between the date of infection and the first consultation varied from four hours to six months. The period of time that elapsed between recurrent attacks varied from four days to three years.

The different tissues of the eye affected were as follows:

1. Conjunctiva: 24 cases = 62.1 per cent. of 37 cases.
2. Cornea: 18 cases = 48.6 per cent. of 37 cases.
3. Iris: 16 cases = 43.2 per cent. of 37 cases.
4. Cornea, only: 4 cases = 10.8 per cent. of 37 cases.
5. Sclera: 3 cases = 8.1 per cent. of 37 cases.
6. Episclera: 2 cases = 5.4 per cent. of 37 cases.
7. Chorioid: 1 case = 2.7 per cent. of 37 cases.

In every case reported, there was either a definite history of injury with a caterpillar or the presence of a caterpillar hair was demonstrated. There was a history of injury in 27, or 73 per cent., of the cases, while the hair was demonstrated in 32, or 86.4 per cent., of the cases. The species of the offending caterpillar was determined in 16, or 50 per cent., of the cases in which the hair was found.

The following species of the caterpillar were demonstrated: *Bombyx rubi,* 10 times; the *Knethocampa processionea,* 3 times; the *Bombyx pini,* 2 times; and the spinning *bombycina* and the *Spilosoma virginica,* each, once.

The treatment adopted in the reported cases has been in the main symptomatic. The local remedies employed have been those usually prescribed in the treatment of iritis. The resemblance of the corneal lesions to those found in keratitis punctata superficialis of Fuchs has led in some cases to the administration of mercury, but without results. Operative treatment has been limited to iridectomy, to combat iritis or increased tension, and for the excision of nodules and hairs.

The prognosis in ophthalmia nodosa should be guarded. It will depend on the tissues involved, the severity of the case, and the extent of the structural change present.

I wish to acknowledge the assistance rendered me by Dr. George M. Waldeck in the preparation of this paper.

Chamber of Commerce Building.

PRIMULA DERMATITIS*

O. H. FOERSTER, M. D.
MILWAUKEE

That the primula or primrose, a flowering plant found in many homes as a floral decoration, is frequently the cause of a dermatitis of more or less severe degree, is a fact not sufficiently recognized by the medical profession.

In this country attention was first called to the poisonous property of the species of primula known as *Primula obconica,* by J. C. White[1] in 1889 and again in 1890, when several cases observed in florists were reported.[2] With the exception of case reports by Denston[3] and Sweet,[4] there have been no further contributions to this subject by American writers, and in the consideration of dermatitis venenata in the latest dermatologic text-books the primula is either omitted entirely or is barely mentioned. This is in marked contrast to the large number of articles on this subject which have appeared in recent years, especially in English and German medical and botanical journals. The distribution of the primula in American homes is almost universal during certain seasons, and is certainly as wide-spread as in England and on the Continent, thus giving an equal opportunity for the development of cases. The discrepancy in the number of cases reported in this country is therefore perhaps attributable to a lack of appreciation of the primula as the possible cause of some forms of dermatitis remaining grouped under the term eczema. I venture to assert that a more wide-spread knowledge of the toxic properties of this plant will shed

* Read in the Section on Dermatology of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

1. Garden and Forest, 1889.
2. Boston Med. and Surg. Jour., 1890, p. 425.
3. Med. Summary, 1903, p. 227.
4. THE JOURNAL A. M. A., July 27, 1907, p. 329.

light on the etiology of many instances of so-called recurrent "eczema," and of cases of "mild erysipelas," basing this on my experience following the presentation of a case of primula dermatitis before a local medical society in 1903. For some time thereafter I was frequently informed by general practitioners of the discovery of cases of primula dermatitis which had masqueraded unrecognized under the convenient term of eczema, (until the primula as a possible causative factor had been brought to their attention).

My personal experience with the dermatitis produced by the primula would indicate that it is not at all infrequent, as it comprises some forty or fifty cases, of all grades of severity and extent, observed during the past seven years. In addition I have learned from others of the existence of many instances of this affection, so that I now constantly hold the primula under suspicion when inquiring into the cause of a dermatitis. In this connection the remarks of Jadassohn[5] are very pertinent, when he says:

> In the past few years the best known—but still not sufficiently well known—inflammations have been those produced by some species of the primula in individuals with an idiosyncrasy toward this plant, affecting especially the hands and face (even with iritis), constantly recurring in acute form or appearing in a more chronic manner with exacerbations. Whoever has once experienced how much an "eczema" for years always appears at a definite time, tortures the patient, is treated unsuccessfully by all possible methods, subsides on rest in bed, and immediately reappears when the patient again goes about (because the care of the plant is resumed), and finally disappears entirely after disposing of the primula, will never again forget to search for the most varied external causes in eczemas of every description.

TYPES OF PRIMULA DERMATITIS

From the observation of any considerable number of cases it is apparent that the dermatitis caused by the primula presents itself chiefly in three types, depending on the degree of idiosyncrasy. Those possessing a well-marked idiosyncrasy to the toxic principle respond with an intense inflammation, erythemato-vesicular in character, at times with the formation of bullæ, and accompanied by more or less swelling. Others develop an erythemato-vesicular or erythemato-squamous eruption of a less acute type, with considerable infiltration, after repeated attacks, and scaling continued over a long period. Again, in others an intensely itching or burning sensation confined to the pulps of the fingers, which are puffed, tense, and slightly reddened, may be the only evidence of reaction.

The clinical picture of the highly inflammatory type in all its details is well presented in the following notes from the case of a housewife, aged 58 (?) made when the attack was of sixteen hours' duration.

> On the face, from level of zygoma to border of jaw, are blotchy, irregularly outlined, erythematous patches extending over cheeks and jaws, converging on the chin, but leaving nose and ears unaffected. On the central part of the left cheek is a dollar-sized patch of closely crowded, almost coalescent, peculiarly angular and flattened vesicles, with clear contents, resembling drops of dew. In the labiomental furrow and extending upward to midpoint of lower lip is an intensely erythematous and slightly puffy area with a central group of small, closely set, angular vesicles. There is no glandular enlargement. The eyelids are not affected.
>
> The dorsum of the left hand is puffed up with an elastic, cushion-like swelling, extending to the ulnar border, over the dorsal and lateral surfaces of fingers, and slightly to the palmar surface of the fingers. The swelling prevents closing of hand. A ring on the third finger is almost hidden in the fold of edema. On the dorsum and lateral surface of ring finger are three tensely filled bullæ with rounded summits and clear contents. Two bullæ are each 1 inch long and ⅜ inch wide; the third is round, ¾ inch in diameter. On the dorsum of the middle finger is one bleb, ¾ inch by ⅜ inch. There are no vesicles on hand or other fingers.
>
> The dorsum of the right hand shows a pale, elastic swelling, extending over dorsum of fingers, without erythema, vesiculation, or bleb formation. The palms of both hands are unaffected, but perspire excessively.
>
> On both forearms, more on extensor than on flexor surface, and extending upward to within two inches of elbow, is a blotchy, unevenly distributed, rose-red erythema with irregular margins, with intervening areas of normal skin. The eruption on the two arms is of equal intensity, and erythematous throughout. The remainder of the body is not involved. There is intense itching and burning, especially on lateral surface of fingers.

In other instances the reaction may be of an abortive papulo-vesicular type on an erythematous base, or simply erythematous or urticarial in character, though the latter has been very infrequent in my experience.

Primrose dermatitis, chronic type, infiltrated and scaling dermatitis.

The cases which might be termed chronic, owing to repeated attacks at short intervals, present an appearance of acute exacerbation of an infiltrated and scaling dermatitis. On the face the skin is thickened and thrown into folds, especially about the eyes, yellow-red in color and covered with closely adherent, thin scales. Vesiculation during acute attacks is imperfect and small denuded areas, slightly edematous, exude thin serum which dries into gummy, yellow crusts. The active inflammatory process appears as though focused in limited areas, without outlying reaction, and as if it were superimposed, giving an appearance of artificiality to the clinical picture, which is often quite striking.

An analysis of the cases as to age, sex, occupation, and the like, is not only of interest, but reveals some points of value in diagnosis. As the dermatitis results from direct contact with the plant it naturally follows that florists, gardeners, housewives and servants are most prominent in the list of those affected; that females are more often affected than males, and that children almost never develop the dermatitis. I observed several cases

5. Deutsch Klin., x, 146.

among the members of a religious sisterhood, and in merchants who made a hobby of cultivating flowering plants.

OCCURRENCE

The primula is hothouse-grown and its growth is forced for its sale during the holiday seasons of Christmas and Easter, though it is in the market at all times. Consequently the great majority of cases developed immediately after Easter, following the introduction of the primula into the home as a floral decoration. Others referred the beginning of the dermatitis to the period immediately following a birthday anniversary, at which time the primula had been received as a gift. In the case described earlier, the patient had been presented with a flowering primula at Easter-time for five successive years, and had promptly each time developed a dermatitis, which became increasingly severe with each recurrence. Many exacerbations followed at irregular intervals for several months, and finally the entire process ceased (after the withered plant had been removed), to reappear at the following Easter. Only once was this sequence broken, owing to the presentation of a primula on the patient's birthday and the consequent development of the dermatitis during her stay at a sanatorium, where she had gone to recuperate after several months of suffering from what was regarded as a "nervous eczema."

In another instance the dermatitis made its appearance regularly for three years on Easter Sunday afternoon, had then persisted for weeks, was considered a "gouty eczema" and was each time cured by a stay at a German health resort.

In many instances the history of regularity or periodicity of attacks or exacerbations provides the clue for determining the cause of an otherwise unexplainable dermatitis, and probably nowhere more so than in the primula dermatitis. This is well shown in the history of several cases which I have observed. One patient repeatedly developed the dermatitis shortly after every return to her own home after a period of time spent in visiting friends or traveling; her return after even a few days of absence was followed by the outbreak of a dermatitis, her first care always having been the trimming of her plants, including the primula. In another instance a dermatitis of only moderate degree and extent appeared on every successive Sunday and subsided by Thursday or Friday of the same week. This sequence is explained by the regularity with which the primula was trimmed every Friday.

The eruption is most often found on the hands, forearms, and face, including the ears, and in all of the cases observed by me these were the only parts of the body affected. I have been informed of the case of a florist in whom the erythemato-vesicular inflammation extended to the shoulders, with marked swelling of both arms.

It appears that the inflammatory reaction remains limited to those parts which come directly into contact with the plant or to which the irritating principle is transferred. Thus, in one of my cases the ears were intensely affected because of transference from the hands owing to the patient's habit of pulling at the lobes of the ears. In the case of a housemaid the fingers and wrists were the only parts affected, owing to their contact with the primulas contained in a window-box when raising or lowering the window shades. A unique case has been reported by Kirk[6] in which an intense swelling of the oral and pharyngeal mucous membrane resulted from chewing a leaf of the primula.

This limitation of the eruption is in marked contrast to that seen in ivy poisoning, in which areas of the skin remote from the points of original contact are frequently and severely affected.

The first symptoms usually observed are intense burning and itching, without visible change in the skin, which, however, soon responds with an erythematous blush and some swelling. I have not observed a papular eruption, though papulo-vesicles may develop later. Rarely the reaction is entirely of an urticarial nature; that is, an acute edema with serous exudate, sufficient at times to prevent closing of the hand. Small vesicles, closely grouped, develop early, and I have been impressed with the frequency with which the vesicles are angular in outline, as contrasted with the rounded vesicular lesions of eczema. The lateral surfaces of the fingers, dorsum of the hands, and the chin and cheeks show the vesicular eruption most often. In the cases I have seen the palms have always remained normal.

The subsequent course of the eruption may be acute, with the formation of blebs and considerable edema, or more subacute with rapid drying of the vesicles and scaling. The duration of a single attack may be as short as four to five days or may be extended to two weeks before recovery is complete. Acute exacerbations due to renewed exposure may prolong the affection indefinitely, and result in the production of a chronic, infiltrative type of dermatitis, lasting perhaps for several months. Fortunately, however, the discovery of the cause of the dermatitis, or the death of the plant, and consequent absence of further opportunity for renewed infection, allows recovery to take place. In this connection it is interesting to note that although under favorable conditions the primula blooms about every six weeks, it usually, after two or three months of household care, loses its vitality and is discarded, at which time the dermatitis also terminates.

The sleeplessness, anorexia, and general nervous irritability observed in some cases can be fully accounted for by the intense burning and itching which is a prominent feature of even mild types of the dermatitis. Fever, chills, joint pains, and other evidences of constitutional disturbance have never been observed by me, though transient slight rises in temperature are mentioned by Nestler.

The variation in the degree of reaction exhibited by different persons to the irritating principle contained in the primula, and the apparent immunity of others, is suggestive of the existence of an idiosyncrasy. The study of a large number of cases, however, shows in many a constantly increasing susceptibility, so that even the slightest contact with the toxic agent will eventually result in the production of an intense dermatitis. Others, apparently entirely immune, will later, after repeated exposure, develop an intense reaction just as do those who exhibit an "idiosyncrasy" primarily. Among florists and their assistants this gradual change from immunity to susceptibility is not uncommon, and I have had occasion to observe several such instances. The personal experience of Nestler,[7] detailed in his admirable monograph, in which his immunity was finally succeeded by an intense susceptibility, provides the experimental proof for the assertion that probably no one is entirely immune.

6. Lancet, 1899, ii, 579, 1630.

7. Hautreizende Primeln, Berlin, 1904.

This extremely sensitized state of the skin, causing marked reaction to even minimal amounts of the irritant, is highly suggestive of the development of an anaphylactic condition, and is comparable to the phenomena resulting after repeated introduction of essentially non-toxic sera of a different species. This view is supported by the analogous condition of increased susceptibility of the skin after repeated exposure to the dust of satinwood, with the development of a dermatitis, observed in satinwood workers by Wechselmann.[3] He also calls attention to the fact that in animal experiments parts of the phenomena of anaphylaxis occur in the skin: intense itching, hyperalgesia and spasm of the arrectores pilorum.

Individuals differ in their rapidity of response to the action of the irritant within wide limits. It has been experimentally determined (Nestler) that the dermatitis may not develop until fourteen days after contact with the plant, although the usual period is from a few hours to two or three days. After repeated attacks the response is more prompt, usually within a few hours following contact. The occasionally prolonged incubation period, and the fact that the primula dermatitis does not always appear after the first contact with the poison, but may require repeated exposures for its development, largely increase the difficulty of diagnosis.

BOTANICAL AND CHEMICAL CHARACTERS

Of the many species of the primrose family only four (*Primula obconica, P. sinensis, P. cortusoides and P. sieboldii*) are known to be capable of producing a dermatitis, according to Nestler's researches, and of these the *Primula obconica* is most virulent and the most frequent offender. *Primula sinensis*, the Chinese primrose, though capable of exciting an intense dermatitis, is less often in question, and will merely be mentioned here.

The *Primula obconica* was introduced into Europe from China in 1883 and several years later began to be extensively cultivated by American florists. The flowers are arranged in a whorl, borne on a slender, cylindrical, hairy stalk, and are pale lilac, pink or purplish in color. The leaves are soft, large, radical, ovate-cordate, hairy, and spring from the root. The leaf-stalk, flower-stalk and midrib are abundantly provided with coarse, easily visible hairs and innumerable fine hairs, the latter being found also on the calyx and corolla. The hairs are all glandular and exude a greenish-yellow material which forms brownish-yellow masses that are readily detached by the slightest touch.

The secretion, including the crystals, is readily soluble in alcohol, ether, chloroform, hydrochloric acid and sulphuric acid, but is insoluble in water (Nestler). Under the microscope the formation of monoclinic crystals can be observed.

Practically all who have written on the subject of primula dermatitis ascribe its production to an assumed mechanical irritation by the hairs of the plant, because these are pointed and said to be easily detached. My study of the subject, however, led to the conclusion that inasmuch as the hairs are not readily detached and are too soft and supple to act as mechanical irritants, the source of the dermatitis must be sought for in the secretion of the plant. The leaves have a faint aromatic odor, distinct from the perfume of the flower, and this suggests the presence of a volatile oil with toxic properties. Experiments with the secretion applied to my skin were negative except for a temporary tingling and prickling sensation, but produced a mild reaction in a patient who had formerly experienced the dermatitis. Similar results followed the application of the dried residue left after washing a number of leaves with ether. At this time I became acquainted with the experimental work of Nestler on this subject, as detailed in his exhaustive monograph, and have been able to confirm a number of his observations. He was the first to demonstrate the existence of needle-shaped crystals and large and small rhombic prisms in the secretion exuding from and covering the glandular hairs of the leaves. By direct experiment on himself and others he was able to produce a dermatitis with crystals obtained by sublimation of the residue left after flooding the leaves with ether; he thus provides the evidence that in these crystals resides the irritating principle of the primula. Although I have repeatedly found extremely minute needle-like crystals and small rhombic forms in the ether washings and in the untreated secretion of fresh leaves, the larger rhombic formations, as described by Nestler, have thus far escaped my observation. The chemical composition of the toxic principle, however, still awaits solution. Nestler showed further that not alone the fresh leaves, but also the thoroughly dried leaves, contain the irritating substance, which explains the infection occurring particularly in housewives, who, when trimming the primula, pick off the dried leaves.

The dermatitis may develop without direct contact with the plant, owing to transference of the secretion to various objects and then to the skin. Nestler was infected several times through the medium of gloves which had been worn while experimenting with the secretion of the plant. In the case of a highly susceptible florist's assistant observed by me the dermatitis developed after handling the paper in which primulas had been packed during shipment. This mode of infection, however, is probably very infrequent, as is also the transmission of infective material from one person to another, as briefly mentioned by Nestler, and direct contact with the plant will be found to have occurred in the great majority of cases.

TREATMENT

Consequently the removal of the primula and thorough cleansing with alcohol of objects which have been in contact with the plant are required to prevent a recurrence of the dermatitis. Alcohol, ether and chloroform are solvents of the secretion, and when applied immediately after contact with the plant have been found by Nestler to prevent the development of the reaction. From my own experience I can confirm this observation, and also Nestler's statement, based on experiment, that alcohol applied immediately on the appearance of the dermatitis, in case there has been a short incubation period, results in a modified and mild course of the inflammation.

In other respects treatment is to be conducted according to the usual principles followed in cases of acute dermatitis. The intense itching and burning are usually promptly relieved on the application of calamin lotion or zinc gelatin, and under a bland ointment the inflammation rapidly subsides and the skin returns to normal after slight desquamation. This rapid subsidence of an apparently intense inflammatory process of eczematous character, under indifferent treatment, ought to be sufficient to arouse suspicion of the artificial nature

8. Deutsch. med. Wchnschr., 1909, No. 32.

of its production and lead to a thorough inquiry as to its external origin.

As a preventive measure it appears desirable for florists to acquaint prospective purchasers of the *Primula obconica* and *Primula sinensis* with the irritating properties of these plants, and thus to assist in not only decreasing the number of cases of dermatitis but in arriving at a correct and early recognition of their cause.

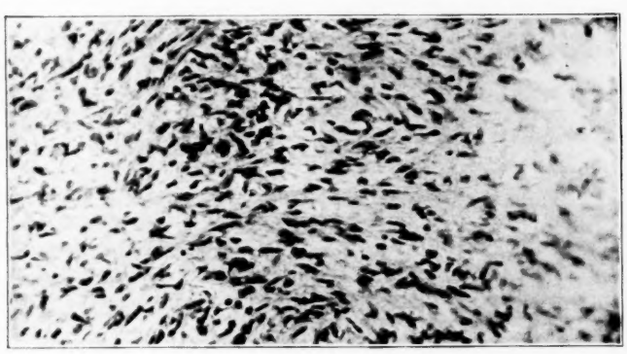
128 Wisconsin Street.

PRIMARY SARCOMA OF THE HEART, WITH REPORT OF ADDITIONAL CASE

HUGH A. BALDWIN, M.D.
COLUMBUS, O.

Primary sarcoma of the heart is a clinical condition which cannot be diagnosed with certainty during life, as it presents no characteristic signs or symptoms. Babcock,[1] states that the usual symptoms are simply those of heart weakness, with irregular and accelerated pulse; pain, if the pericardium is affected, and murmur, if an opening is obstructed.

It is difficult to say with absolute certainty just how many cases of primary cardiac sarcoma have been reported, as the actual pathology in some of the earlier cases must always remain in doubt. It is very probable that some of them were secondary to overlooked foci.



Photomicrograph of section of primary sarcoma of the heart.

In the following list of cases which I have collected from literature, I include those cases only in which the diagnosis of sarcoma seems to be unquestioned.

Bodenheimer[2] collected seven cases up to 1877, including the five cases found by Ely in a review of fifty years' literature. Leyden and Fraenkel added two other cases, reported in Berthenson's list of cardiac neoplasms. Of these nine, eight were round-celled and one was giant-celled sarcoma. Since Berthenson's[3] report several more have been added. In 1890 Bernheim reported[4] a sarcomatous polyp of the right heart. Three years later Hektoen[5] reported a case of primary sarcoma of the epicardium, a case very similar pathologically to the case of primary sarcoma in the heart of a dog, reported by Bryant.[6] In 1896, a case of primary sarcoma was reported by Leroux and Mesley.[7] In 1898 Raw[8] and Lambert[3] reported their cases, Raw's case being a spindle-celled sarcoma attached to the wall of the right auricle. In addition to his own case Lambert describes one of primary angiosarcoma of the heart and pericardium, reported by Redtenbacher. Azzunini,[9] in 1907, contributes one more case in an article on tumors of the heart.

This brings the number of authentic cases of primary sarcoma of the heart previously reported to sixteen. My own case is the seventeenth. The details of the case are as follows:

History.—The patient was a young man, aged 34, sent into Grant Hospital by Dr. M. D. Fitch, July 25, 1909. He had always been fairly healthy, but never really robust. April 20, 1909, he fell against a heavy box with considerable force, causing a good deal of bruising of the left chest, but he continued at his work for three weeks. He has had no fever; no chills. His temperature never rose more than 4/10° higher than normal. He had had occasional sweats.

Examination.—Marked dyspnea, amounting even to orthopnea, was present, and swelling of the ankles and marked pulmonary symptoms. Physical examination made by Dr. J. F. Baldwin, Dr. N. R. Coleman and Dr. M. D. Fitch showed considerable dulness, perhaps complete flatness, over the lower portion of the left lung, and all through this left lung could be heard coarse râles of all descriptions, though but little air seemed to enter the lung, except at the upper portion. The right lung showed the same general condition, but there was no flatness, and the râles were not so pronounced. The heart was enlarged, and the apex-beat was about two inches below the nipple. The conditions were very suggestive of encysted effusion or solidification of the lung, but a careful consideration of the symptoms present would favor the diagnosis of solidification. The patient coughed a great deal, and what expectoration there was, was bloody. Sputum examination showed no tubercle bacilli. The prognosis was unfavorable, and patient returned home.

Autopsy.—A post-mortem examination made Saturday, September 4, 1909, showed both lungs very highly congested. This was more marked, however, at the base of the left lung, where in one spot there was an organized blood-clot about the size of an egg. The heart was very much enlarged. A section of the heart showed the right side of the heart very much dilated, the walls of the right ventricle being no thicker than cardboard. In the left auricle was found a pedunculated tumor, taking its origin from the margin of the vein returning from the base of the left lung. The tumor practically filled the left auricle. It measured 3 inches in its greatest length, 2½ inches in thickness and 8¼ inches in circumference. Its weight was 3½ ounces. With the exception of the large hemorrhagic pulmonary infarct near the base of the lower lobe of the left lung, further examination was negative.

Pathologic Report on Specimen.—Dr. J. J. Coons kindly examined the tumor, and made the following report: "The specimen consists of a pear-shaped tumor, measuring 5 by 6 by 7 cm. It is encapsulated, somewhat irregular, and nodular. On section, the tumor mass is soft, and pinkish white in color; it is homogeneous except for the infiltrating bands bounding the nodules. Macroscopically, there is no degeneration.

"Histologically, for the most part the slides show large spindle-cells, some of which are rod-like. The nuclei stain sharply, in contrast to the cytoplasm. Mitotic figures are found in small numbers, and also multinucleated giant-cells. The larger blood vessels consist of single endothelial tubes.

"*Diagnosis.*—Large spindle-celled sarcoma."

347 East State Street.

1. Babcock: Mod. Med., iv, 130.
2. See: Traité des maladies du cœur, 1889.
3. Lambert: A Case of Primary Sarcoma of the Heart, New York Med. Jour., 1898, lxvii.
4. Bernheim: Polype sarcomateux du cœur droit, Bull. Soc. anat. de Paris, 1890, lxv, 223.
5. Hektoen: Primary Round-celled Sarcoma of the Epicardium, Med. News, Philadelphia, 1883, lxiii, 571.
6. Bryant: Primary Sarcoma in the Heart of a Dog, Bull. Johns Hopkins Hosp., 1907, xviii.
7. Leroux and Mesley: Sarcome du cœur, Bull. Soc. anat. de Paris, 1886, lxxi.
8. Raw: Primary Tumor of Auricle of Heart, Brit. Med. Jour., 1898, ii.
9. Azzunini: Clin. Mod. Florence, 1907.

A NEW INCISION FOR EPITHELIOMA OF UPPER AND LOWER LIPS OF SAME SIDE

WALTER S. SUTTON, A.M., M.D.

Assistant Professor of Surgery, Kansas State University; Assistant Attending Surgeon, Kansas City General Hospital; Assistant Surgeon, St. Margaret's Hospital

KANSAS CITY, MO.

The incision described is an adaptation of the principles of the well-known Dowd operation to the removal of a growth involving both upper and lower lips. This readily appears from the similarly-lettered sketches presented herewith.

Fig. 1.—Suggested incision for epithelioma involving both lips.

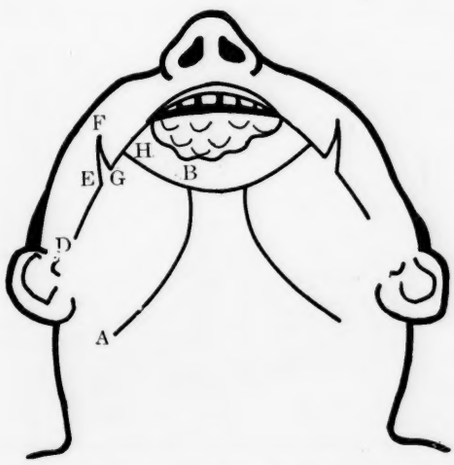


Fig. 2.—The Dowd incision (after Binnie).

In the Dowd operation, as in its predecessor, the Malgaigne, it is usually necessary to excise a triangle (E F G Fig. 2), from the upper half of the cheek in order that the tension necessary to bring the lower flaps together may not produce a wrinkle in this location. In the absence of involvement of the upper lip this triangle may be taken out at any convenient point. If, however, there is involvement of the upper lip this triangle may be made of such size and placed in such a location as to remove it (E F G Fig. 1). In case of a growth involving the entire lower lip and both ends of the upper lip, the procedure could be made bilateral and would then resemble the Dowd operation even more closely.

In practice the incision A B is first made and the removal of submaxillary lymph and salivary glands completed. The facial artery is preserved though its ligation is not necessarily followed by necrosis of the flap. The other incisions are then marked on the skin and rapidly completed, the outer portion of the line D H going down only to the deep fascia over the masseter. The flap A B H D is then separated from the jaw-bone as far back as required to permit the necessary stretching, care being taken not to injure the facial artery in this step. The point E is then brought over to point G and point H to point C.

Fig. 3.—Result following author's incision twenty-two days after operation.

In case of deficiency of mucosa on the part of the new-made portion of either lip, much can be done toward covering the raw area by simply drawing over the edge of the mucosa from the sound side without dissection and tacking it to the raw surface by means of one or two plain gut sutures.

Figure 3 is from a photograph of a patient in which the growth and incision lines correspond closely to conditions shown in Figure 1. The photograph was made on the twenty-second day after operation.

Argyle Building.

A CLAMP FOR ISOLATING A PORTION OF THE LUMEN OF A BLOOD-VESSEL WITHOUT STOPPING THE CIRCULATION THROUGH THE VESSEL*

G. N. STEWART, M.D.

CLEVELAND, O.

For various purposes in physiology and also in surgery it may be desirable to clamp off temporarily a longitudinal portion at one side of a blood-vessel while the circulation is allowed to go on through the remainder of the lumen. A field can thus be provided in which the operator can work at his leisure without fear of injuring the organs supplied or drained by the vessel by clamping it off altogether. I have devised a clamp by which this can be conveniently done. One form of it is shown in the accompanying illustrations.

The essential points are the following:

* From the H. K. Cushing Laboratory of Experimental Medicine, Western Reserve University.

1. The long, narrow grip of the jaws in the longitudinal direction. The grip is narrow in order that as little as possible of the lumen may be encroached on. The length of the occluded portion will, of course, vary with the purpose for which the clamp is used.

2. The extension of the grip at each end at right angles to the length of the vessel. This is necessary to complete the occlusion of the isolated segment. The length of the rectangular portions must be proportioned to the diameter of the vessel worked with. If too long, they project too far beyond the vessel, and thus make the field of operation less accessible for some purposes.

3. The hollow behind the gripping edge in which the open portion of the vessel is safely lodged and protected from pressure. The size of this hollow must be great enough to comfortably accommodate the non-occluded part of the vessel.

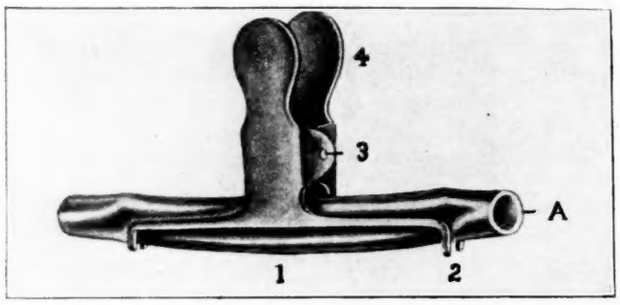
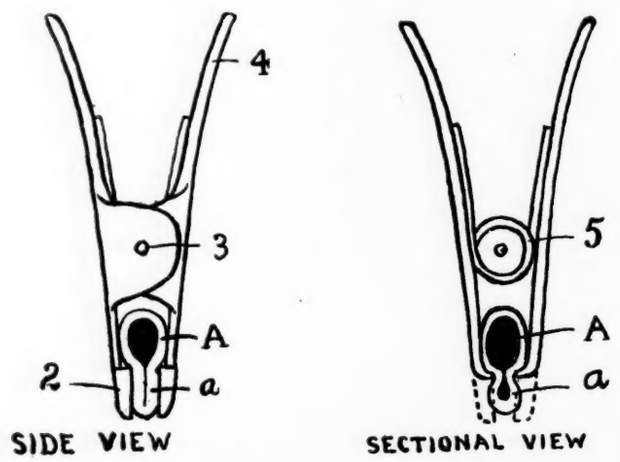


Fig. 1.—Front view of clamp in position on vessel; (1) middle of the isolated portion of the vessel; (2) the rectangular projections of the jaws; (3) the axis on which the jaws rotate; (4) grip for the fingers; A, open lumen of blood-vessel beyond the clamp.



Figs. 2 and 3.—Side view (to the left) of clamp (2, 3 and 4 as in Figure 1; A, open portion of lumen of vessel in the hollow of the clamp; a, occluded portion of lumen); and sectional view to the right) at position of (1) in Figure 1; (5, section of the spring through which the pressure of the clamp is obtained; a, isolated portion of the lumen; A, open portion).

In the clamp shown in the figures the pressure is obtained from a small-sized spring behind the axis. It can also be made with a screw for graduating the pressure. A pair of ordinary "bull-dog" forceps fitted with jaws of the shape described is another form which may be useful for some purposes.

Such clamps might be employed to arrest hemorrhage from a wound in a large vessel which could not be clamped completely without detriment, and during the suturing of the wound; possibly in the treatment of sacculated aneurism in some situations; in performing lateral anastomosis of blood-vessels in cases where it is undesirable to completely occlude one or both of the vessels for the time required in the operation; in performing lateral implantation of one vessel on to another which must not be totally occluded; in inserting a cannula laterally into a vessel without stopping the circulation when there is no convenient branch of the vessel which might be used, or where it is disadvantageous to occlude such a branch; in narrowing experimentally the lumen of a vessel without temporarily occluding it, especially when a diminution of the lumen by a definite amount is desired, etc.

My colleague, Dr. George W. Crile, has told me that it might be useful to have a clamp which embodied the

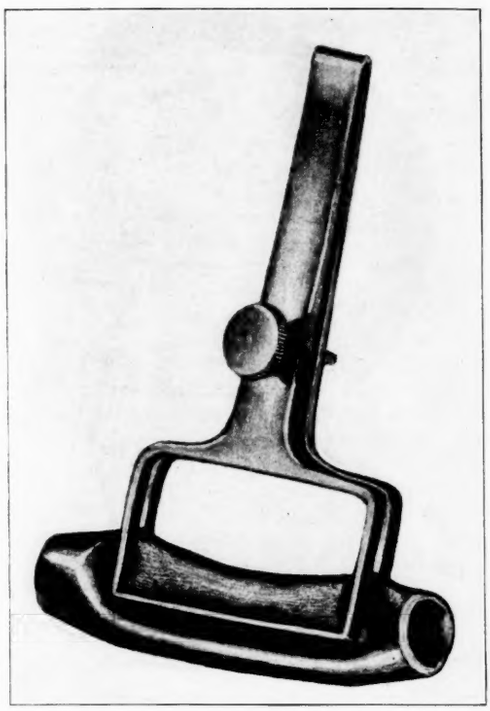


Fig. 4.—Clamp to be applied to the wounded side of the vessel only.

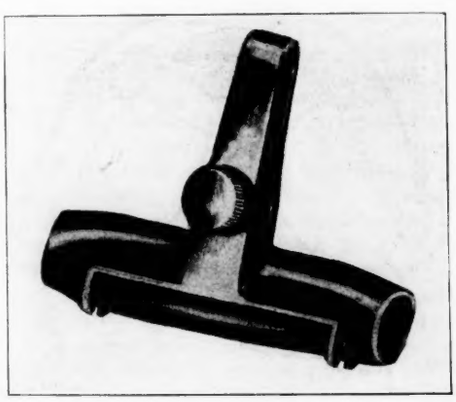


Fig. 5.—First form of clamp as made with a screw for graduating the pressure.

principle of that just described but which could be applied over a wounded vessel without dissecting out the vessel too freely. I have therefore devised the form shown in Figure 4. This is intended to be applied to the wounded side of the vessel only. It is supposed that the surgeon could suture the wound through the open portion of the clamp while the circulation goes on through the part of the lumen not included in the

clamp. This clamp may possibly be used also for some of the other physiologic or surgical purposes for which the first form was intended. Figure 5 shows the first form of clamp as made with a screw for graduating the pressure. The jaws, of course, may be covered with thin rubber.

East Ninth Street and St. Clair Avenue.

FEMORAL HERNIA OF FALLOPIAN TUBE WITHOUT OVARY

CHARLES H. PARKES, M.D.

Assistant Professor Operative Surgery and Surgical Anatomy, Chicago Policlinic

CHICAGO

The intention in presenting this case is not to emphasize its rarity, however unusual the condition may be, but to call attention to the possibility of the occurrence and the necessity of its recognition at time of operation.

The literature on the subject has been covered by Dr. Frank T. Andrews[1] and Dr. Paul Morf[2] of Chicago up to the year 1907. It is therefore unnecessary at this time, to pursue that phase of the subject to any greater extent than to refer those interested to the articles mentioned. These writers—in their reports—present cases of their own to add to the list of the few on record.

Since the publication of Dr. Andrews' last paper on the subject in 1907, very few cases are to be found; in fact, I have been unable to discover any of the femoral and only three of the inguinal variety. In these cases the tube was not found alone within the sac but with some other abdominal or pelvic viscus.

History.—The case which I wish to present, referred to me by Dr. J. F. Williams, is that of a woman 33 years old, married, whose occupation was that of a housewife. The family history is negative, having no bearing whatever on the difficulty in question. The menses began at 14, and had always been regular and without any especial pain. The patient had never noticed the occurrence of any vaginal discharge. She had been married at 30 and never had been pregnant. There was no history of injuries of enough importance to have made an impression. With the exception of an attack of typhoid fever ten years previously and the negative history of gestation and trauma, the personal history was devoid of interest.

Present Illness.—The patient complained of a small tumor in the region of Scarpa's triangle of the right thigh. This tumor had existed for about fifteen years as a small lump that varied slightly in size and consistency from time to time. It had caused no inconvenience, however, and in consequence had never been examined. Within the last twelve months the size of this tumor had increased gradually until at the time of this examination, it had reached that of an egg. During the last few days, pain had developed in the right pelvis and abdomen and the tumor itself had become tender.

Examination.—The routine examination of the patient showed her to be of large frame, with a very wide pelvis; her condition to be unusually good, except that her expression betrayed anxiety. Pulse was 110; temperature, 100 F. The tumor under consideration was situated in the right thigh, below Poupart's ligament, but a little higher than the usual location for a femoral hernia. It was tense, slightly discolored, and gave the sensation of slight fluctuation. Absolutely no impulse was obtained on hard coughing and no change in size on pressure in whatever position the leg was placed. Bimanual examination of the pelvis revealed nothing definite because tenderness interfered with the examination. An indefinite mass could be palpated in the right pelvis. No diagnosis was made further than that of a femoral hernia, perhaps strangulated, or the possibility of an enlarged inflamed lympathic gland.

Operation.—A transverse incision curved upward above Poupart's ligament through subcutaneous tissue to the tumor, revealed a hernial sac extending up under Poupart's ligament. The sac was thick, tense and filled with fluid. When incised, a sanguineous colored serum escaped. The sac contained, besides the fluid, what was shortly identified as about one-third of the Fallopian tube. The tube showed evidence of considerable congestion, was swollen to about the size of the patient's thumb, purplish in color and besides was adherent in several places to the peritoneum, especially around the neck of the sac. The fimbria were matted together, red, and adherent to the sac. Reduction was impossible without incising Gimbernat's ligament and even had this course been followed it would not have been warranted on account of the pathologic condition of the tube. The abdomen was incised in the median line, the general peritoneal cavity protected and the pelvis explored. The uterus was found drawn forward, twisted somewhat to the right with the cornu of that side

Femoral hernia of Fallopian tube without ovary. This illustration is reproduced from a cadaver specimen, prepared at the Chicago Policlinic Laboratory, to show conditions found in the case.

pointing toward the femoral canal. The right ovary was discovered plastered up against the femoral ring, cystic, and about the size of an orange. The right tube was stretched, thinned and disappeared into the femoral canal. The left tube and ovary were practically normal. The indications were in favor of exsection of the right tube and resection of the corresponding ovary. The tube was removed by incising elliptically into the cornu to remove mucous membrane canal in wall of uterus, suturing the uterine incision and with the same suture coapting the layers of the broad ligament outward to the femoral ring. The portion of the broad ligament which followed the tube into the sac was ligated separately; the tubal adhesions freed from the sac and the tube lifted out of the sac through the femoral incision. The femoral ring was found small and thus, by removing the tube backwards, was left small. The sac was then freed, ligated, resected and through abdominal incision, purse-stringed. The ovary was resected in the usual manner and the appendix removed because of concretions. The abdominal incision was closed and the thigh incision drained for thirty-six hours, with rubber tissue strip.

1. Andrews, Frank T.: Hernia of the Tube without the Ovary, THE JOURNAL A. M. A., Nov. 25, 1905, p. 1625; Hernia of Ovary and Tube, THE JOURNAL A. M. A., Nov. 24, 1906, p. 1907.

2. Morf, Paul F.: Hernia of Fallopian Tube with Hernia of Ovary, Ann. Surg., March, 1910.

The patient made an uneventful recovery, leaving hospital in ten days.

When a condition as unusual as the above is encountered during an operation, the procedure must be determined by following the general principles of operative surgery, relieving the condition by removing the pathologic tissue, repairing defects and guarding against infection.

Routine methods for operating in such a case cannot be fixed, as here we have encountered the unexpected in the usually simple operation for femoral hernia.

The steps taken in this operation were determined on because of the following considerations:

1. The size of the ring under Poupart's ligament. Had this hernia been of the inguinal variety the ring could have been enlarged and a second abdominal incision would have been unnecessary.

In this case the right horn of the uterus could not have been resected through the femoral ring.

2. The fact that the tube was adherent to the sac in several places, especially around its neck; that the portion within the sac was swollen, dark red, but except at points of adhesions the peritoneum was free from blisters, erosion or anything to indicate much inflammation. This condition of strangulation was certainly mechanical rather than inflammatory and the evidences of inflammation were not of recent date.

3. The advisability of knowing the condition of the pelvic organs, especially on account of the pelvic tenderness and the mass palpable through the vagina. The median incision seems to have been justified by the finding of the large cystic ovary.

4. The superior results obtained in the removal of the tube by excising at the horn of the uterus and suturing layers of broad ligament, rather than ligating *en masse* as would have been necessary had the tube been resected in location of hernia.

5. The positive indication for the removal of the tube on account of its very evident pathologic condition.

The most plausible of several etiologic possibilities as to the causation of this condition seems to be that this was probably originally a small intestinal or omental hernia, that the abdominal contents were reducible and at some time, when reduced, were replaced by the tube. The tube was at the time, or, later, became slightly inflamed, forming adhesions between itself and the sac, causing it to become irreducible. The strangulation occurred because of the interference with the tubal return circulation, by possibly Gimbernat's ligament, with the subsequent congestion, discoloration, swelling and transudation of serum.

There may also be an explanation based on J. H. Russell's theory[3] from the congenital standpoint but in this case, aside from the natural tendency to a hernia in this location, especially in the case of a woman with a particularly wide pelvis, the history containing nothing to indicate trauma of any nature, nothing here adds any conformation to the embryologic hypothesis.

If congenital it must be an accidental defect rather than a consecutive embryologic development, like that for example in the male, where the testicle descends down into the scrotum and an embryologic sac, which normally is obliterated, remains within the sheath of the spermatic cord.

The fact that this case is one in which the tube was found alone within the sac, seems to have been an accident. This should have been a case with the tube and ovary both involved within the hernia. The ovary certainly had a tendency to follow the tube, as shown by the location in which it was found. The small hernial ring or the cystic enlargement of the ovary, or perhaps both, were responsible for its retention within the abdomen.

161 State Street.

3. Russell, R. Hamilton: Congenital Origin of Hernia, Intercolonial Med. Jour., Australia, Jan. 20, 1906.

INTRADURAL TUMOR OF THE SPINAL CORD WITH OPERATION *

EDWARD E. MAYER, M.D., AND OTTO C. GAUB, M.D.
PITTSBURG, PA.

REPORT OF CASE AND ANALYSIS BY DR. MAYER

The diagnosis of tumors of the spinal cord is no longer difficult, nor is their operability in a majority of cases a debatable question. Indeed the large number of patients successfully operated on has fully justified the optimism of Victor Horsley as expressed by him three decades ago.

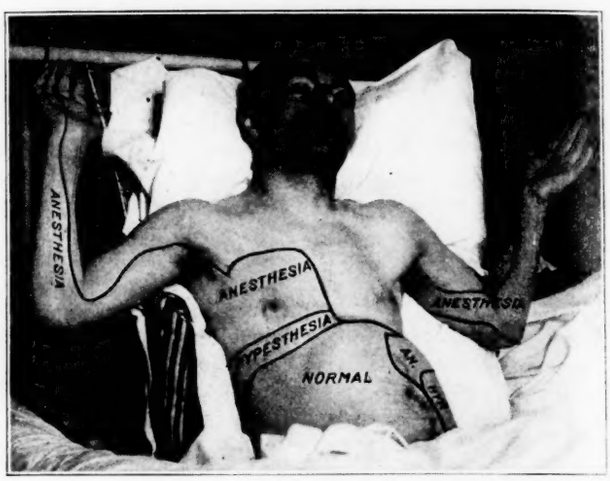


Fig. 1.—Patient with intradural tumor of the spinal cord, front view, showing areas of anesthesia, hypesthesia, and normal sensation; from photograph made four months after operation.

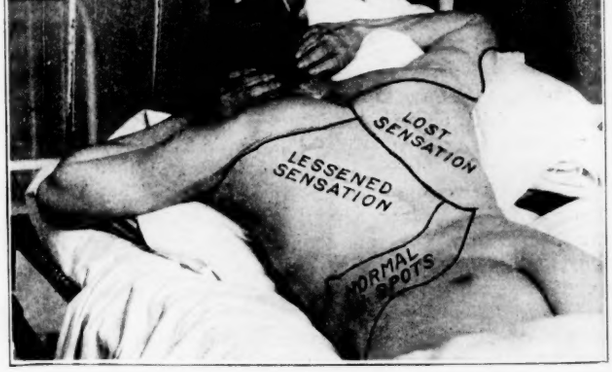


Fig. 2.—Same patient, back view, showing areas of lessened sensation, lost sensation, and normal sensation in spots; from photograph made four months after operation.

Since then in every country many have contributed to our knowledge of tumors of the spinal cord—the recent books of Malaise, Bruns, Oppenheim and Schlesinger covering well the entire subject—so that we shall try to avoid being too discursive.

* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

CASE REPORT

Clinical History.—July 12, 1909. Family and previous history are not noteworthy. The patient, M. T., had not had syphilis, gonorrhea, or any infectious disease, but probably did overexert himself and subject himself to cold and privation. A cloth manufacturer in Russia, he was reduced to poverty, and for some years after coming to America peddled, carrying a fifty-pound grip. For the last four years he had been a storekeeper in a small way.

Present Illness.—In 1904 he felt a slight pain between his shoulder-blades. This was continuous for about one month and was especially noticeable when he threw his head back or turned his neck; when recumbent he could move head and neck freely without any pain manifesting itself. This pain grew worse, was intermittent, and would shoot down the inner side of his arms, and at one time disappeared for over a year. In October, 1908, on the advice of his physician, he went to Mount Clemens to try to get relief there from this pain. At this time he could not stoop to tie his shoe laces on account of the pain in his neck. His spine was at no time stiff, however, nor was there any lateral deviation or torticollis. When he would sit for any length of time, a numb feeling would steal up his legs which he would not notice when he was standing or walking. Later, a similar sensation developed around his right elbow. Pain between his shoulder blades not only persisted, but now would not stop when he was walking or when recumbent or with any position of his head. While at Mount Clemens, he took the baths and massage and believes his pains disappeared for a few weeks. However, he returned home very weak, and a little later, (November, 1908,) noticed a weakness in his right leg which could not be lifted as easily as before. This grew worse from day to day. About a month later, his right arm began to feel heavy and his hand-grasp was weaker than formerly. This weakness increased to paralysis. About January, 1909, his left leg and arm became involved similarly. He came to see me on January 11, was told of the seriousness of his condition and the probabilities of an operation, and advised to go immediately to the hospital. He chose to be guided by other opinions, however, and presented himself again only on July 12, six months later.

Examination.—At this date the patient was absolutely helpless, having been bedridden from the beginning of March. He complained very much of cramps in his calf muscles, accompanied by involuntary flexion of his legs, with sharp pains extending up his arms and back, to his neck. He had absolutely no power of voluntary motion in his lower limbs. When his lower limbs contracted involuntarily, his fingers drew up also in the ulnar side. He had no erection and no ejaculation for six months, nor had he any longer control of either bladder or bowel. When he wished to cough or take a deep breath he felt a constriction or sense of heaviness across his chest. The patient slept soundly except when awakened by the spasms. There was no disturbance of hearing, smell, taste or of speech. There was absolute paralysis of lower limbs, with pronounced clonus, and incontinence of urine and feces.

Right Hand and Forearm: Weakened power of supination; no power for extension of hand; inability to flex fingers completely. He could flex second phalanges about thirty degrees. There was inability to abduct thumb; slight abduction and adduction of fingers on radial side; absent on ulnar side. Interossei and intrinsic hand muscles were slightly atrophied. Hand grasp was zero.

Left Hand and Forearm: Extension and flexion weakened but neither so much as on right side; abduction of fingers weakened; hand grasp zero.

Reflexes: Mendel-Bechterew phenomenon present; knee-jerks both much increased; Babinski present in both legs; Oppenheim present in both legs; Gordon present in both legs; cremasteric reflex, faint; abdominal reflexes, absent; triceps and ulnar reflexes, diminished; scapular reflex, absent. On extreme lateral movements of eyeballs there were slight nystagmoid movements. Right pupil slightly larger than left. Normal pupillary reactions. Equal palpebral fissures. Fundi normal. Normal neck and shoulder movements. No enlargements of vertebræ. Entire spinal column freely movable. Percussion, which was taken with posterior surface of the flexed index-finger elicited slight tenderness over sixth cervical vertebræ. Auscultation with percussion (tonal percussion) over vertebræ negative.

Sensation: Patient complained of a cold pain in right leg. In areas of lost sensibility, patient felt at some places a delayed sense of touch or pain without being able to orient it; that is, to tell where he had felt it. This was most noticeable in the lumbar flanks and inguinal region. Lost tactile sensation extended one segment higher than lost pain sensation, as high as the second rib in front and the first dorsal vertebræ behind. Temperature sense was disturbed about equally in areas shown by chart, but especially on the right side of the body. Inner side of arms anesthetic, analgesic and thermanesthetic; bathyanesthesia and pallanesthesia of both lower limbs.

Wassermann negative; von Pirquet negative; blood examination negative; radiograph negative.

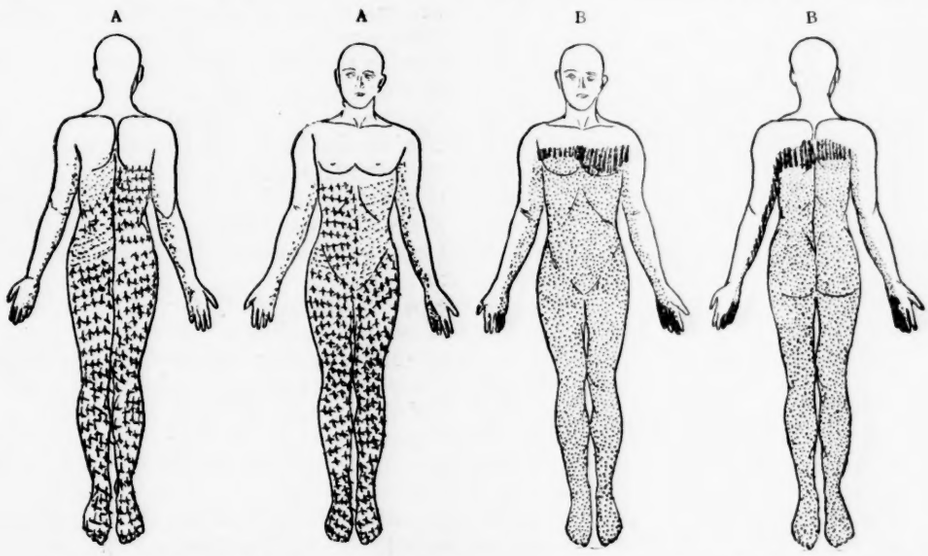


Fig. 3.—Diagrams of sensation areas in same patient before operation. In A A, area covered with crosses indicates loss of temperature sense to both heat and cold; stippled area indicates deficient temperature sense, either delayed or not always correctly interpreted. In B B, stippled portion indicates the region in which both pain and tactile senses are lost; portion shaded with lines indicates additional area with tactile anesthesia; solid shaded portion in hands represents lost muscle sensation.

Diagnosis.—Tumor involving seventh and eighth cervical and first thoracic spinal nerves, the sensory changes pointing especially to the eighth cervical and first thoracic, and the muscle changes to the sixth and seventh roots as well. Operation was not arranged for until September on account of taking our vacation.

This history on analysis read so clearly that a diagnosis of spinal cord tumor was easily made, its location, structure and extent only requiring a further study. It is needless to emphasize the importance of establishing these points in discussing the question of a spinal tumor and its operability, which carry with them a consideration of the segments of cord or of spinal roots involved. I am omitting all special points connected with tumors of the vertebræ themselves, or of intramedullary tumors, except as they enter into the question of the diagnosis of intravertebral tumors, extradural or intradural, which are primarily the operable types, and whose clinical histories are practically similar. It is to the intradural variety that this case belongs.

SYMPTOMS AND DIAGNOSIS OF INTRADURAL TUMORS

Symptoms of intradural tumors, following somewhat the arrangement of Bruns may be grouped as follows:

1. Spinal Roots:
   a. Irritative symptoms.
   b. Compression symptoms.
   c. Atrophic symptoms.
2. Spinal Cord:
   a. Symptoms of local pressure.
   b. Symptoms of tract disease:
      1. Unilateral.
      2. Bilateral.
   c. Symptoms due to growth of tumor into cord.
3. Vertebral:
   a. Erosion.
   b. Trophic.

In other words, depending on the origin, size, and manner of growth, intradural tumors will slowly but progressively evoke symptoms of unilateral, later bilateral, pain and hyperesthesia, radicular in type, spasms and then paralysis, perhaps of a Brown-Séquard type at first (unilateral compression of cord), but generally becoming rapidly a paraplegia (total compression) with atrophy.

With Mr. T. no objective early history was obtainable, but even his meager description brings out a very important fact; that is, the fairly constant pain between his shoulder-blades was made worse on movement. Though there are exceptions, whenever an algia of such a location is intensified by movement of the head or by stooping, coughing, etc., a strong suspicion of spinal root irritation should be instantly created. Indeed, if at that time, it had been found on examination that the algia extended segmentally, and not according to a peripheral innervation, with the absence of any lateral deviation of the spine or stiffness, a probable diagnosis of spinal cord tumor at that time, even before the onset of any paresis atrophy or segmentary anesthesia, would, I believe, have been justifiable. The necessity of examining for objective sensory changes twice a month or oftener, is also indicated, in order to detect the oncoming of this significant diagnostic point. The occurrence of edema in the innervation zone of the painful spinal root, to which Schlesinger and, lately, Pearce Bailey call attention, is a valuable help when present. With doubtful pains, corsets and braces or extension are advocated, though Oppenheim calls attention to their making the symptoms rapidly worse. The question of an eccentric projection of pain (Shultze) should never be forgotten, and all possible diseases of the thoracic and abdominal organs excluded. An extension upward of a spinal growth would of course, involve new segments and roots and evoke symptoms higher up the cord. An extension downward need not cause any new symptoms; never, if there has been a complete conductive paralysis. A bilateral pain is more often found in vertebral tumors than in tumors of the roots and spinal cord, and if in addition shortening of the spinal column is noticed, carcinoma of the vertebræ is most probable. Of course, the incomplete intercostal neuralgias which are not of Head's type, found in hysteria and the presence of trophic muscular disturbances accompanying simple chronic neuritis, must always be excluded.

The fact that three nerve roots must be affected before distinct sensory and motor paralysis occurs emphasizes in my opinion the importance of a careful investigation of these prodromic symptoms of spinal root irritation, their intensity, constancy and stubborness to medical treatment, their aggravation on movement and explosive respiratory acts, the segmental character of the pain and tenderness or hypesthesia present and possibly localized tenderness or increased pain on pressure over vertebræ. A change in the vertebral percussion note manifestly could occur only late in the growth of the tumor (except of the vertebral tumors), and if it did occur early, should awaken suspicion of a serous meningitis more than of tumor. The change, however, in the percussion note is so slight that it can never be of much value as a diagnostic factor. Palpation and percussion should always be done slightly to each side of the spinous processes and in palpation I have found that pressure upward helps to get a more reliable result. Percussion on one side and listening with the stethoscope on the other side of the spinal column is a good method.

A striking point in our patient's history is the length of his period of pain. Though the course of spinal cord tumors is a slow one, and of the intradural type the slowest (an average of twenty-six months according to the most reliable statistics), with Mr. T. we have a history of four to five years of radicular pains, indicating possibly an irritative state before the appearance of, or without an increase in the size of, the tumor. The question, moreover, of a possible primary radicular disease preceding the growth of the tumor, must be considered. Such a protracted course is, however, not exceptional as the histories given by Horsley, Bruns and Oppenheim show, though in our patient it persisted longer than in the patients reported by them before compression symptoms developed. I could hardly reconcile this slow course with the pathologic finding of an endothelioma.

We have learned from experience that motor symptoms without sensory alterations, even though they increase progressively, cannot be accepted as conclusive evidence of the presence of a tumor of the spinal cord, and that whenever there is reasonable certainty of its presence, the place for operation depends on the localization of the upper pole of the growth. Charting on the skin the areas which show sensory alterations is without question necessary in every case of spinal cord disease, and especially in suspected tumor cases. Further realizing that every muscle and skin area is innervated by from two to four segments, we must locate the seat of cord injury at least one segment higher than the paralysis of motion and sensation indicates. I have, for instance, at present in my service at the South Side Hospital a probable case of dorsal-cord tumor in which the motor paralysis is of the second to the fourth lumbar segments and where the upper pole of the hypesthesia is at the

level of the tenth dorsal vertebra. Operation will be justified, however, a little higher, as it is reasonably sure that the seat of trouble is higher. The pains and spasms of this patient are particularly prominent and call attention to the importance of such symptoms in localizing the upper pole of the growth. Indeed, where this so-called anesthesia dolorosa, or the so-called paraplegia dolorosa of Cruvelhier, is present, its value for localization exceeds every other symptom. Though therefore in this latter patient we would from her paralytic symptoms view her paralysis as lumbar, the hyperesthesia and spasms point to a higher innervation and must be considered in the operation to be performed on her.* Another interesting symptom of this patient is the intermittent presence of Babinski's sign, present one day, absent the next.

Unless the surgeon is also a neurologist, he should always have the seat of injury or of disease thoroughly located, if possible, before operation. I was, for instance, recently asked to examine a patient because he did not recover motion and sensation after a laminectomy; in him I found segmental symptoms several segments higher than the operative site, though I could not assert, not having examined him previously to the operation, that there had not been an ascending myelitis since the operation. How much better, however, had it been if this patient had been thoroughly examined before operation!

To return to our patient who is the subject of this paper: The sensory charts revealed an involvement of the last cervical and upper dorsal segments. We assumed the upper pole of the growth to be a little higher, because of the total anesthesia and paralysis, and because of the local tenderness ignored the dorsal cord entirely, and the operation, skilfully performed by Dr. Gaub, revealed a tumor at the sixth cervical segment. I wish to also add that Drs. McKennan, Diller, Henniger and Silver saw this patient and confirmed our diagnosis.

One cannot too strongly remember that to have paralysis, two or three spinal roots or segments must be injured, and that with an area of intense pain the spinal root above, or perhaps two spinal roots, are probably affected. Individual variations of course occur, so that whenever we have hyperesthesia lying segmentarily over an anesthetic zone, it clinches localization. In segmental localization the upper pole of the lesion is always higher than the symptoms indicate and often higher than the area laid bare by the surgeon. That the innervation zones are given by some authorities a segment higher or lower than generally accepted can be practically ignored, because of the rarity of such an occurrence, coupled with the fact that we must, on account of the trisegmental innervation spoken of before, and of the topographic relations of cord, roots and vertebræ, allow for an error of at least one segment. I am not forgetting that dissociated anesthesia as a temporary symptom has been occasionally reported even in extradural tumor, but it is an extremely rare occurrence.

Given a positive segmental diagnosis in any progressive disease where the pains are severe and there is no hope for any other kind of benefit, operation, in spinal cases, is indicated (except where gliosis symptoms are present), even where the diagnosis is not clear, and subacute myelitis, localized serous meningitis or pachymeningitis have not been absolutely excluded.

* Since this was written, an operation on this patient was performed and no tumor but a localized meningitis was found.

Postoperative History.—The damage to the cord in our case was too extensive to warrant absolute recovery, though Mr. T. is better and his life has been saved. Loss of sensation gradually decreased to a hypesthesia on the right side and his spastic phenomena measurably decreased in intensity, but not entirely. Both motion and sensation gradually improved in his left arm and hand, but not in his right, and he can now turn in bed, partially sit up and move his toes, all of which was impossible for him to do last summer. The last sensory chart made of him shows that his thermic sense has practically become normal on his right side; that the upper level of the hypesthesia is not as high as was the anesthesia (right side), but practically the same on the left side. His right hand remains totally paralyzed. Notes made by my assistant, Dr. MacIntire, this spring read:

"Right Arm: Partial abduction of wrist. No abduction. Palmaris longus causes flexion of wrist. Slight contraction of flexor sublimis digitorum seen in movements of index finger only. Spade-like hand. Thenar and hypothenar eminences atrophied. Pronation and supination normal. No lateral movements of fingers or of thumb. Left Arm and Hand: All muscles normal."

The pictures taken by Dr. MacIntire show the present sensory involvement. A last report from our patient informs us that he now sits up ten hours daily and sleeps soundly all night, his obstipation being what most troubles him at present.

REPORT OF OPERATION BY DR. GAUB

The patient was placed in the prone position, with the head slightly lower than the shoulders, which eliminated the normal curvature of the posterior surface of the neck.

A straight incision was made over the spinous processes of the vertebræ, beginning at the fourth and ending at the first dorsal spinous process. The soft tissues were removed from the spinous processes and lamina of the fifth, sixth and seventh cervical vertebræ.

The arches of the sixth and seventh cervical vertebræ were removed by means of Macewen's bone-cutting forceps. Nothing abnormal was found. The dura presented a normal appearance and pulsated.

At the suggestion of Dr. Mayer the arch of the fifth cervical vertebra was removed. The dura was opened in the median line, revealing the cord, whose contour showed no gross alteration.

The exposed cord, at its lower level, felt resistant on palpation. By means of an aneurism needle the cord was gently drawn to the left, which exposed a mass the size of a Malaga grape, bluish white in color, situated on the right anterolateral surface of the cord, apparently traversed on its posterior surface by the posterior root, on account of the dislocation of the cord, and on blunt dissection it seemed to surround the anterior root of the sixth cervical nerve.

During the process of removal the tumor ruptured, but with care it was removed, possibly with the exception of a minute portion of the growth, which may have remained in the sixth intervertebral foramina.

The tumor on microscopic examination, made by Dr. Proescher, pathologist to the Allegheny General Hospital, proved to be an endothelioma. The dura was closed with interrupted catgut sutures, the soft structures, as far as possible, coaptated by means of a continuous catgut suture, and the intermuscular space drained with rubber tissue.

The patient was placed in bed on his side. There was moderate shock. Within a few hours, the temperature rose to 102.6 F. and continued a degree lower, with slight remissions, for the next seven days. There was moderate leakage of cerebrospinal fluid. After the removal of the drain, the patient suffered a chill and a rise in temperature to 103.2 F.

The temperature dropped to normal within thirty-six hours. It continued at 99 F. for a week, when there occurred a second chill, moderate in severity, and a rise in temperature to 101 F. This quickly subsided and the temperature remained around 99 F., until four days later there was another chill and the temperature arose to 102.6 F., which again quickly receded.

Two more chills, mild in character, and an increase in temperature occurred at intervals of four days, following which the temperature remained normal.

During this time there was moderate leakage of cerebrospinal fluid through the drainage tract. The patient was maintained in the semiprone position for three weeks and then gradually allowed to lie on his back. The surgical convalescence from this time on was uninterrupted.

Several points in the operative technic for the removal of tumors of the cord are engaging the attention of surgeons at the present time.

The conservation of cerebrospinal fluid is of great importance. Attention given to the position of the patient, both on the operating table and when returned to his bed, the minimizing of drainage and the accurate suturing of soft tissue would tend to serve this purpose. It is probably better to close the dura with a continuous suture of catgut.

Careful hemostasis, accurate suturing, and coaptation of the soft structures, tend to close the hiatus left following the removal of the arches, and minimizes the necessity for drainage, but the surgeon may feel it safer to insert a rubber tissue to care for any dead space between the muscle layers.

After the dura is opened, avoidance of frequent mopping with gauze will save cerebrospinal fluid.

A tumor hidden by the cord is best recognized by palpation. In the present case pulsation was present, no gross alteration of the cord presented, and the presence of a tumor was determined by gentle palpation.

The question of a two-stage operation, as advised by Elsberg,[1] for intramedullary growths, appears to me to be a wise procedure. For the intradural type of tumor, its removal, as a primary procedure, is preferable, provided the patient's resistance warrants the completion of the operation.

A study of the literature presents the surgery of spinal cord tumors in a favorable light and it may well be that patients will submit to operation when a tumor of the cord is strongly suspected by competent diagnosticians, and not postpone the operation until irreparable damage to the cord has been done.

ABSTRACT OF DISCUSSION

DR. THEODORE DILLER, Pittsburg: Through the kindness of Dr. Mayer I was permitted to examine this patient before the operation and also to witness the operation. I can bear witness that the examination was thorough and complete, and that the tumor was found as was expected and in accordance with the markings of the diagram which is going around the room. I must join with him, too, in his regret that the improvement in this patient is not greater, and that the case did not come to operation at an earlier time. I believe that Dr. Mayer is right in attributing the lack of improvement to the fact that the operation was so long delayed. Secondary degenerations must have occurred.

DR. JULIUS GRINKER, Chicago: About a year ago it was my privilege to report a case similar to this one, and it was published in THE JOURNAL and in the transactions of this Section. Dr. Mayer's experience was almost identical with my own. The diagnosis had not been made until it was too late to produce a perfect cure. The patient recovered and has regained sensation fully, but not much motion. Recently I have again seen the patient and found her quite comfortable, but she cannot walk. She has a typical spastic paraplegia with contractures. In that case the localizing diagnosis was correct and the operation was a success, but the true nature of the disease had not been recognized sufficiently early. She had had neuralgic pains for a long time, and was treated for intercostal neuralgia before I saw the case.

Recently I had a similar case in which I made a diagnosis of tumor of the spinal cord and localized it correctly. What was supposed to be a tumor was found opposite the eighth dorsal vertebra. That case, however, proved to be a cyst, a so-called meningitis serosa circumscripta, a number of cases of which have been recently reported by Munro. I do not see how it is possible to correctly diagnose the pathology of a tumor before operation. In my presentation of the case before the Chicago Surgical Society, I mentioned the various kinds of neoplasms and also the possibility of finding a cyst. The operation was performed by Dr. S. C. Plummer, of Chicago, who discovered a circumscribed cyst and no tumor. I did not feel that it was a mistake in diagnosis. Munro has called our attention recently to the little known fact that in diagnosing spinal tumor we must always make the reservation that it might be a cyst rather than a tumor. In the event of it being a cyst, it should be emptied of its contents; and this would be equivalent to the removal of the tumor, because we cannot dissect out the very fine membrane without injuring the meninges. My patient made a good recovery from the operation. Diagnosis was based on the fact that there was an abrupt beginning of the line of hypesthesia and hypalgesia; there were no continuous pains; only occasionally some neuralgic pains on one side. The opposite side showed a monoplegia or spastic paralysis of the Brown-Séquard variety. Sensory disturbances on one side, motor disturbances on the other, and an abrupt beginning of hypesthesia and hypalgesia, enabled me to diagnose neoplasm rather than transverse myelitis. There were sphincter disturbances which have improved since operation; the patient walks better; sensation is slowly returning, and it appears as though a perfect recovery will ensue.

DR. CHARLES L. DANA, New York: The surgery of the spinal cord has certainly made great advances in the last few years, and the success in the removal of tumors of the spinal cord has been very much greater than that of removing tumors of the brain.

In New York we have had in the last five or six years a great many operations of this kind, and it has been shown that a very large proportion of these tumors are operable. If you look over the classified list of the tumors of the cord as given in the text-books and monographs, you would not suppose there were many tumors that could practically be removed. As a matter of fact in the cases that I have seen operated on they are nearly all fibrosarcomata or endotheliomata, as the pathologists now choose to call them. And they are pretty nearly always either extramedullary or growing from the pia and not infiltrating the spinal cord to that extent that they cannot usually be dissected out.

The diagnosis of spinal tumors has been made of course, more exact; but in addition to that, exactness of diagnosis has not been so necessary as formerly, for the reason that the operation for exploration has been rendered comparatively safe. Dr. Taylor has advised an operation for unilateral laminectomy by which we can very quickly and easily cut down, expose the spinal cord, and if there is no tumor, or if the conditions do not warrant operation, the parts are restored, and the patient is pretty well in a comparatively short time; and for that reason sometimes we do not have to postpone the decision of operation for so long a time as we otherwise would. I always insisted on the niceties of diagnosis. You cannot by any possible means always, it seems to me, say that it is a tumor. I think in about 90 per cent. of cases we can be quite sure, but in the other 10 per cent. we are likely to run into a cyst, or sometimes a certain rather curious thrombotic softening of the cord, which is found occasionally instead of cysts.

I have found in one or two cases that the *x*-ray has been of help in diagnosticating the location and seat of the tumor, especially when there is any involvement of the bone in connection with the disease.

1. Elsberg, C. A.: The Extrusion of Intraspinal Tumors, THE JOURNAL A. M. A., April 16, 1910, p. 1308.

Treatment of Recent Epilepsy.—W. A. Turner, in the *Lancet*, states that there is no single specific remedy in the treatment of epilepsy, although the alkaline salts of bromin come nearest to this definition. But the influence of the bromids on epileptic convulsions, he says, is variable and uncertain.

UNIVERSITY MEDICAL SCHOOLS *

JAMES J. WALSH, M.D., PH.D., LL.D.
Dean and Professor of the History of Medicine and of Nervous Diseases at Fordham University School of Medicine
NEW YORK

In recent years there has been a very decided improvement in medical education in the United States. It is not hard to understand why the foreigner lifts his eyebrow in surprise when he is told that most of our medical schools a generation or two ago required but two terms of four or five months each and that there was just beginning to be a demand for a little more complete course and better facilities. There were many medical schools with these low standards turning out graduates every year with the degree of Doctor of Medicine, which constituted a license to practice in every state in the Union, for there were no laws regulating the practice of medicine. As for preliminary requirements, the less said the better. If a man could write his name—and, indeed, he did not have to write it very plainly—he found it easy to matriculate in a medical school and to be graduated at the end of two scant terms. He might come from the mines or from the farm, or from before the mast, or from the smithy, or the carpenter shop; he need know nothing of chemistry, or physics, or botany, or English, or, above all, English grammar, to be admitted to what was called a professional school and graduated when he had served his time. Practically no one was "plucked." The desire of the faculty for numbers of students forbade that in most cases. The two terms in medicine were not even successive courses. The second-year student listened to the same lectures that he might have heard the preceding year.

We all know the reason now for this extremely low standard of medical education. Proprietary medical schools made it their one business in life to make just as much out of medical education as possible and the professors, or sometimes the dean, pocketed the fees—I came near saying the spoils—every year, and robbed medical education of whatever possibilities it might have for the real training of young men in the science and art and practice of medicine. Perhaps the most interesting feature of this maintenance of extremely low standards in medical education is the fact that, in spite of it, men—at least many of them—succeeded in obtaining a good foundation in medicine and then, by personal work afterward, came to be excellent practitioners of medicine. Professor Welch said not long since:

> One can decry the system of those days, the inadequate preliminary requirements—the short courses, the dominance of the didactic lecture, the meager appliances for demonstrative and practical instruction, but the results were better than the system. Our teachers were men of fine character devoted to their duties; they inspired us with enthusiasm, interest in our studies and hard work, and they imparted to us sound traditions of our profession.

Some of these very admirable results our medical schools with their longer terms do not achieve at the present time.

Nothing that I know is a better testimony to American enterprise and power of overcoming the difficulties of an almost impossible situation than the life-stories of some of the men who came from these utterly inadequate schools. If with the maimed training and incomplete education given a generation ago American medicine not only succeeded in maintaining the dignity of the profession to a noteworthy degree, but also raised up many men who made distinct contributions to world medicine, what may we not do now that our medical education is gradually being lifted up out of the slough of despond in which it was, and the preliminary education for medical students set at a standard where real work can be looked for of thoroughly scientific character from the very beginning of the medical course?

Is it any wonder, then, that those of us who have the best interests of American medicine at heart are watching with deep interest the movement that is now reforming medical education in this country? The one hope of medical education is and always has been organic connection with the university. Real university medical schools—that is, medical schools as the genuine postgraduate departments of universities with the fine training that they give—have opened our eyes to what is needed in medical education in this country. Some of the old-time medical schools here in the United States had been connected by name with universities; but this connection was more apparent than real, and the medical faculty ruled absolutely in its own department, throttled medical education, and divided the income of the college among themselves, devoting as little as possible to equipment, to laboratories, to all that was needed for medical education.

Now has come the epoch of university medical schools in this country—I came near saying America; but we must not forget that the Spanish-American countries having adopted their educational systems from their mother Latin country always maintained the organic connection of the medical schools with their universities, and as a consequence a good preliminary education has always been required there. At least four years in the medical school were required even in the sixteenth and seventeenth centuries, and five and six years during the nineteenth century in all these Spanish-American countries. I have thought, then, that this story of medical education in connection with universities and genuine university work would be interesting to the graduates of that great western university whose work in medicine is acknowledged to be up to the best standards of university professional work, and whose organic connection with a great university assures not only a continuance, but the future development of medical education here along lines that shall place this in the very near future among the productive medical schools of the world.

The first university medical school that well deserves that name is the one that came into existence in connection with the University of Alexandria. I have been at some pains, because it is so delightfully amusing, to point out how the University of Alexandria resembles our modern universities in most particulars. It was founded by a great conqueror who had gone out and made the world his oyster, and, having extracted from it the pearl of supreme dominance, sighed for more worlds to conquer, founded a great city that was to be the capital of his empire, and looked forward to endowing a great institution of learning in that capital that was to attract students from all over the world. When he died prematurely the Ptolemies carried out his wishes. Money was no object at Alexandria; they put up magnificent buildings, founded a great library, bought a lot of first editions of books in the shape of original manuscripts, stole the archives of Athens, used Alexander's collection made for Aristotle as the foundation of what we would call a museum, paid professors better salaries than they received anywhere else, and housed them in

* Address to the graduates of St. Louis University Medical and Dental Schools, May 31, 1910.

palaces. What a strangely familiar sound all this has! Then Alexandria proceeded to do scientific work.

Euclid wrote his geometry and we still use it as a text-book in our colleges. Archimedes followed up Euclid's work, laid the foundations of mechanics in his study of the lever and the screw, and of hydrostatics and of optics in his study of specific gravities and burning mirrors and lenses. He made a series of marvellous inventions showing that he was a practical as well as a theoretic genius, and would be gladly welcomed as a member of the faculty of a university of moderation times even of the highest grade. Later Ptolemy elaborated the system of astronomy that had been first taught by Alexandrians, and Heron invented his engine, which we have had as a toy in our laboratories for centuries, and of which we only realized the true significance when the turbine engine was invented; then we found that its principle was in the toy engine of this old natural philosopher of Alexandria. They even wrote their literature scientifically at Alexandria. We have no great original works from them in literature, but they invented the comparative study of literature, for this purpose making the Septuagint translations of the Scriptures and many another religious document of the surrounding nations for comparative studies.

It is rather easy to understand, then, that a medical school arose in connection with this scientific university, and that it did excellent work. The collections of Aristotle contained many illustrations which served as a basis for zoology, botany, comparative anatomy and what we know generally as the medical sciences. The Ptolemies were very liberal and allowed dissection of the human body, so that human anatomy developed from a definite scientific standpoint better than ever before. The number of strangers in the town and the rather unhealthy climate of Egypt left many unclaimed bodies. The lack of such facilities, much more than prejudice against the violation of the human body on any general principle, has been the reason for the absence of human dissection in many periods of the world's history. We object to having the bodies of friends cut up, but we do not mind much if the bodies of those who are unknown to us are treated in that way. So long as men did not travel much there were few unclaimed bodies. With the advent of travel came abundant material for dissection and Ptolemy allowed the medical school to use it.

Two great anatomists built up the structure of scientific anatomy on the rather good foundations that had been laid in animal anatomy in the foretime. After all, the anatomy of the animal resembles that of man so much that very precious knowledge had been gained from such dissections in the previous ages. These two anatomists were Erasistratos and Herophilos. Both of them devoted themselves to the study of the brain, as might well have been expected, just as soon as the opportunity for dissecting man was provided. Herophilos has named after him the torcular Herophili and the name he gave the calamus scriptorius is still retained. He described the membrane of the brain, the various sinuses of the chorioid plexuses, the cerebral ventricles and traced the origin of the nerves, the brain and the spinal cord, recognized the distinction between nerves of sensation and motion. He described the eye, and especially the vitreous body, the chorioid and the retina. He did not neglect other portions of the human anatomy, however, and his exact observations may be judged from his remark that the left spermatic vein in certain cases joins the renal.

Erasistratos was perhaps even a more successful investigator than Herophilos. He represented the best tradition of Greek medicine of the time. He had two distinguished teachers, one of them Metrodoros, the son-in-law of Aristotle. It was probably through this influence that Erasistratos received his invitation from the first Ptolemy to come to Alexandria. The scientific work of Alexandria, then, was founded on Aristotle's collections, on his books, for his library was brought to Alexandria as the foundation of the great university library, and then the direct tradition of his scientific teaching through this pupil of his son-in-law. Erasistratos' other great teacher was the well-known Chrysippos of Cnidos. Cnidos was the great rival school of the time to that of Cos. Owing to the reputation of Hippocrates we know of Cos, but we should not ignore Cnidos. Erasistratos' discoveries were in connection with the circulation more than anything else. He came very near discovering the systemic circulation. His description of the valves and of their function is very clear. He looked for large-sized anastomoses between veins and arteries, and, of course, did not discover the minute capillaries which required Malpighi's microscope to discover nearly 2,000 years after. Like Herophilos, Erasistratos also studied the brain very faithfully.

It is no wonder that students from all over the world were attracted to Alexandria for the next three centuries because of the opportunities for the study of medicine afforded them there. After the first century of its existence not so much was accomplished as at the beginning, because what always occurs in the history of medicine after a period of successful investigation happened also there. Men concluded that nearly everything had been discovered and began to theorize. They were sure that their theories explained things. Men have persisted in spinning speculative theories in medicine. Theories unsupported by observations have never helped us and they have always wasted our time. Observation is the thing that counts. Alexandria continued to have the reputation, however, and in the first century of the Christian era was the greatest center of medical interest. It was probably here that St. Luke was educated, and we know now, from the careful examination of the Third Gospel and of the Acts, he knew his Greek medical terms very well. Harnack has shown us recently once more how thoroughly Luke converted the ordinary popular terms of the other Evangelists into the Greek medical terms of his time. Luke must have known medicine very well. His testimony to the miracles of Christ is, therefore, all the more valuable, and seem quite providential.

After Greece and Rome there is supposed to be a sterile interval in medical education down almost to our own time. We are prone to think, because of the curious ways in which the histories, not only of medical education, but of all education, have been written that, while there were some schools in the Middle Ages, these were of so little value that men practically did nothing in education until modern times. Such an opinion is certainly absurd and ridiculous. The great universities founded during the thirteenth and fourteenth centuries attracted more students to the population of the countries of the time than go to our universities to the number of our population in the present day. These medieval universities are the models of our universities of the present time; and, indeed, the history of many of the old European universities is continuous for seven centuries. They had an undergraduate department in

which students were trained in grammar, rhetoric, logic, arithmetic, astronomy, music and gymnastics; and graduate departments of theology, law and medicine. Huxley, reviewing medieval education, once said that the undergraduate department of the medieval universities was better than our own. He doubted "that the curriculum of any modern university shows so clear and generous a comprehension of what is meant by culture as this old triviam and quadriviam did."

Their post-graduate work was just as fine as their undergraduate work. They systematized the law of the world in the thirteenth century and laid the foundation on which the philosophy and theology of the after times have been built up. Strange as this may seem to many, they did the same thing in medicine. Take, as a single example, what they did for medical education and practice. A law of the emperor, Frederick II, issued in 1241 for the Two Sicilies, required three years of preliminary training, the ordinary graduate course at the university, before a man was allowed to take up medicine, and four years at medicine before he received his degree, with a year of practice with a physician before he was allowed to practice. If he were going to practice surgery an extra year of the study of anatomy was required. But many will be apt to ask: "Since men of the middle ages knew almost nothing of medicine and surgery, at what did they spend their time during these four years?" The more we know about the details of that early teaching the more we respect them.

Probably the most surprising feature of their teaching was in surgery. We are very apt to think that the development of surgery was reserved for our day. Nothing could be more untrue. The greatest period in the history of surgery, with the possible exception of our own time, is the century and a half from 1250 to 1400. What they taught in surgery we know, not from tradition, but from the text-books of the great teachers which have been preserved for us, and many of which have been recently republished. Three men stand out preeminent: William of Salicet, Lanfranc, who taught at Paris, having been invited there from Italy, where he had been a pupil of William's, and Guy de Chauliac, to whom have been given by universal acclaim the title of "Father of Modern Surgery."

There is practically nothing in modern surgery that these men did not touch in their text-books. Perhaps the most surprising thing is to find that William of Salicet, in discussing his cases, suggested that sometimes he succeeded in obtaining union by first intention by keeping his wounds clean. Alas for the surgery of succeeding centuries! Guy de Chauliac, a greater mechanical genius than William, insisted that union by first intention was an illusion, and that healing could come only through pus formation. Laudable pus became the shibboleth of surgery for centuries, imposed on it by the genius of a great man. Most men think that they think; they really follow leaders, and so followed blindly after Guy until Lister came and showed us our mistake.

Guy was a teacher at Montpellier, and also the physician to the popes, who were for the time in Avignon. His text-book of surgery is full of expressions that reveal the man and the teacher. He says the surgeon who cuts the human body without knowledge of anatomy is like a blind carpenter carving wood. He insisted that men should make observations for themselves and not blindly follow others. He discussed operations on the head, the thorax and the abdomen. He said that wounds of the intestines would surely be fatal unless sewed up, and he described the technic of suture for them. His specialty was operation for hernia. There are pictures still extant of operations for hernia done about this time in an exaggerated Trendelenburg position. The patient is fastened to a board by the legs, head down, the board at an angle of 45 degrees against the wall. The intestines dropped back from the site of operation and allowed the surgeon to proceed without danger. Guy said that in hernia cases more patients were operated on for the sake of the physician's pocket than for their own benefit. His instructions to his students, his high standard of professional advice, all show us one of the great physicians of all time, and historians of medicine are unanimous in their praise of him.

The next great development in medicine came at the time of the Renaissance with the reorganization of the universities. In the sixteenth century Italy particularly did magnificent work in the universities, stimulated by touch with old Greek medicine which had been republished. At Padua, at Bologna, above all, at Rome, in the magnificent papal medical school, the great foundations of the modern medical sciences were laid. I need only mention the names of Vesalius, Varolius, Eustachius, Fallopius, Columbus, who discovered the circulation of the blood in the lungs, and Cæsalpinus, to whom, and rightfully, the Italians attribute the discovery of the systematic circulation nearly half a century before Harvey. These men, all of them, did fine work everywhere in Italy. They were doing original investigation of the greatest value. Whenever anybody anywhere in Europe at this time wanted to do good work in science, astronomy, mathematics, physics, and, above all, any of the medical sciences, he went down to Italy. Italy was, and continued for five centuries after the thirteenth, to be what France was for a scant half century at the beginning of the nineteenth, and Germany, for a corresponding period just before our own time. How curiously the history of science and of medicine was written when it seems to contradict this! Above all, what ridiculous nonsense has been taught about papal opposition to science! The great universities of Italy in the thirteenth and fourteenth centuries had charters from the popes. They were immediately under ecclesiastical influence, yet they did fine work in anatomy and surgery. Rome had a fine medical school for centuries. Bologna, at the height of its fame in medicine, was in the sixteen papal states. The father of modern surgery was a papal physician. The papal physicians for seven centuries had been the greatest contributors to medicine. Anyone can find this out for himself if he reads the history of medicine. The popes deliberately selected as their physicians the greatest investigators in medicine at the time. Besides Guy de Chauliac, such men as Eustachius, Varolius, Columbus, Cæsalpinus, Lancisi and Malpighi were papal physicians.

We have an even more striking testimony to the papal patronage and encouragement of medicine and to the church's influence in fostering medical education here in America. The first university medical schoool was not, as has so often been said, the University of Pennsylvania, founded in 1767, my own medical alma mater —and it is not to decry her but to bring out the truth that I say it—but the medical school of the University of Mexico, where medical lectures were first delivered in 1578. Our medical schools in this country have become genuine university medical schools, in the sense of being organic portions of the university, only in the last

twenty years. Before that their courses were brief and unworthy and no preliminary education was required.

The universities of Spanish America from the very beginning required three years of preliminary training in the university before medicine could be taken up, and then four years of medical study. These four years became five and six years in certain countries, and at no time during the nineteenth century did the medical education of Spanish America sink to the low level unfortunately reached in the United States. The lesson of it is clear. When medical education is seriously undertaken as a university department all is well. When it is not, results are disastrous.

887 Longwood Avenue.

THE PREVENTION OF INFANT MORTALITY FROM AN EDUCATIONAL STANDPOINT*

L. T. ROYSTER, M.D.,
NORFOLK, VA.

In no line of research has scientific investigation achieved more striking results than in medicine. Nor has the broad-mindedness of the physician been content with the mere alleviation of human suffering, however praiseworthy this may be, but that altruism which has always characterized the profession is impelling it to strive with ever-widening success for the complete eradication of preventable disease and suffering and the developing of a race noted for health, vigor and strength. Preeminent among such efforts stand the investigations of the pediatrists, who hold an undisputed position among the pioneers in the study of prevention, and I may safely say that enough is known to-day to reduce materially the present fearful rate of infant mortality if the knowledge were properly applied, and yet with all that has been discovered and the knowledge which has been acquired, the actual number of deaths during infancy has not been materially decreased, and the question naturally arises, why? The answer is simple; because a knowledge of the means of preventing infant mortality has not been sufficiently disseminated among the people. If this is true and I am thoroughly convinced that it is true the question resolves itself into the best means of distributing such information as will aid in this campaign, to all people of all classes and conditions of life, showing them what are the causes of mortality, the results of bad management and how best to apply the knowledge of the means of prevention to the accomplishment of the desired end.

I propose, therefore, to discuss a few ways in which education may aid in a material reduction of the death-rate among infants and children. It seems to me to be entirely proper that we start with the profession itself in our campaign of education, for on us must rest the burden of at least interesting the public in the vast importance of this crusade and directing its mind in the right channel along which to work.

In the first place, the course in pediatrics in the majority of colleges is entirely inadequate and far from commensurate with the importance of the subject. Anatomy, practice of medicine, therapeutics, materia medica and other branches are well taught in the average medical college and even a certain number of actual deliveries in obstetrics are required for graduation; and, as is well known, surgery is given so much time both in lecture and in attendance on clinics that one might well imagine that nine-tenths of all students who graduate are being prepared for a practice wholly devoted to this branch, whereas, in many colleges, if pediatrics is taught at all, it is treated as an unimportant side-branch of practice of medicine or obstetrics. It would appear, therefore, that the college authorities fail to realize the importance of the subject, which is important to the student because it is a very necessary part of his preparation for general practice into which the majority of the graduates of the medical schools fall, and important for its bearing on the life and health of the nation, for mortality among infants means not only depopulation but deprivation of many useful, if not wealth-producing citizens to the community; while morbidity—which cannot be separated from mortality in such a discussion as this—bears directly on the virility of the race. So in the beginning I must make a plea for better instruction in this branch of medicine during the college course.

One of the most serious matters for consideration is the awakening of the practicing physician to the vast importance of the proper handling of infants and children, for barring the three great factors, poverty, overcrowding and ignorance, all more or less economic in their nature, the careless or ignorant physician is perhaps the most difficult part of the problem to handle. Many doctors are either too ignorant or too lazy to attend properly to the needs of infants during the first year of life; consequently they turn these helpless creatures, especially the artificially fed ones, over to a nurse who may or may not know anything about their care, or what is worse, dismiss the case with the sole instruction to an ignorant mother to put the child on A's or B's patent food and to follow the manufacturer's circular, or else to employ the equally vicious alternative, condensed milk. Some one has aptly said that "the patent food is the boon of the lazy doctor, the bane of the suffering infant," and I know of no words which better describe the situation. Such men as these are either unwilling to admit that they do not know how to feed infants or they are afraid of losing a few dollars by referring the case to some one competent to take charge; and are comparable to the obstetrician who fails to instill the silver solution into the eyes of the new-born.

As I have stated, this class of physicians presents an exceedingly difficult phase of the problem and I am quite certain that there is only one way in which they can be reached and that is through their patients. The public must be taught wherein consists proper and improper handling of infants, what constitutes good feeding, the evils of improper feeding, and in a general way, what is right for the physician to do. When they understand these things, as they will in a remarkably short time, if properly instructed, they will then demand more careful and approved attention to their children on the part of the family physician, who will be compelled either to study approved methods for himself or to seek aid from those better informed on the subject. Likewise the people should be taught the true significance of the blindness resulting from the gonococcus and the means of its prevention, and when they fully realize its importance we can rely on them to see that the attending obstetrician or midwife uses the silver solution.

As we all know, the most important and far-reaching of the many causes of the condition under discussion is ignorance on the part of those having the intimate care of children during that most critical period of life—infancy. This, of course, usually means ignorance on the part of mothers; hence the key-note of the whole

* Read in the Section on Diseases of Children of the American Medical Association, at the Sixty-first Annual Session, held at St Louis, June, 1910.

situation is the education of the mother in the home. When taking histories it is not an uncommon occurrence for a mother to state that she has had seven or eight children and that she has raised only one or two, the rest dying in infancy. This, in the majority of instances, is the most striking commentary on the knowledge (or ignorance) of the mother. Nor is this to be wondered at. Many a woman becomes a wife and subsequently a mother without having had instruction in any of the many difficulties with which she is to be confronted, with the natural consequence that she is soon surrounded by a galaxy of sympathizing and self-opinionated neighbors who are pouring into her open ears a detailed account of miraculous cures effected by this or that remedy, which she receives and uses with an avidity born of desperation and bred of the ignorance of which she is the unfortunate heir. As the natural result of this the stricken mother has the misfortune to see her offspring wilt in her arms, where she invariably keeps it, until at last the physician may be called only in time in most cases to sign the death certificate. The influence of "grannies" is gradually passing, at least among the better classes of society, and yet their superstitions are still apparent in many of the so-called home remedies in common use. The fear of fresh air for the well, to say nothing of the sick infant (especially those sick with eruptive diseases) is still so prevalent as to make us involuntarily ask the question whether the value of fresh air has even begun to be appreciated by most people; while the methods of feeding and handling which are generally practiced are so obviously indicative of ignorance that we might well imagine we are dealing with mothers just from the African jungle rather than in the heart of American civilization.

I am glad to see that the custom of early weaning from the mother's breast is rapidly going out of fashion; but the importance of maternal feeding as a factor in the prevention of infant mortality cannot be impressed too strongly on the popular mind. The economic value of breast-feeding should be emphasized, and will appeal strongly to those of moderate means. About nine out of every ten mothers who come to my clinic (mostly negroes) know of only one substitute for mothers' milk, and that is condensed milk; and when told of the value of fresh cows' milk at once inform us that they know of no one who has just one cow from which to secure the child's food. So deeply does this idea of the one cow's milk for the child seem to be implanted in the minds of the poorer people that it is with great difficulty they can be persuaded to get their milk from a good dairy or the milk laboratory. These ideas and superstitions are in many instances so well established in the popular mind that when we endeavor to explain the correct method of procedure, we often meet with such a degree of suspicion toward the physician that it would appear the profession is held in light esteem and that its opinions are regarded with less confidence than those of the old women or neighbors alluded to before. Hence the confidence of the people must be secured to the physician before much can be accomplished.

It is well known what remarkable success has met the efforts of those interested in the prevention of tuberculosis in instructing the public concerning the cause, means of prevention and cure of this disease through the medium of a general educational campaign; why then cannot as much be done through the same means in the equally important field of the prevention of infant mortality? As has been said before, the key-note of the situation is the education of the mother in the home. How then may we best reach the mother? A great deal can be done through popular lectures and magazine articles and the few such articles as have appeared in some of the prominent magazines have already borne fruit, as I have had opportunity to witness quite recently; and such articles have greater weight than the private talk of the family physician, or else confirm what he has often said and prove the correctness of his statements because it has been "seen in print."

Probably the greater proportion of mothers, however, never see these magazines or hear a popular lecture and the valuable information contained in them is lost to the most important part of the population. This class, therefore, is to be reached through other channels and I know of no better way than through the well-conducted dispensary and milk depot. The instruction and advice given in the dispensary can be followed up in the home by a competent visiting nurse, without which any dispensary or milk depot is seriously handicapped, if not a failure, so far as popular education is concerned. Whatever the method, therefore, whether by magazine article, pamphlet, dispensary or the individual instruction by the visiting nurse in the home, the object should always be to gain the confidence of the people so that they will follow the advice and instruction of the physician or nurse rather than of the self-constituted and ignorant adviser or the patent-medicine circular.

The havoc wrought by long working hours for the nursing mother and the woman about to become a mother are too well known to physicians to be more than mentioned here, but not until the public generally becomes aware of this injury to women and its fearful results to their offspring in mortality and morbidity, shall we ever secure a proper regulation of labor laws. I believe, firmly, that when public sentiment is sufficiently aroused, the people will demand of both legislator and manufacturer regulation in this matter and a respect for life and health as opposed to the value of the dollar. Human life and health, however, can be shown to be a valuable asset of pecuniary value and, when this is done an impetus will be given the struggle for regulation of working hours which cannot be secured in any other way, for we all know what a powerful influence the monetary standard of valuation possesses. From this point of view, I have strong hope in the aid we shall eventually receive from the insurance companies, especially those of an industrial nature; for when these companies once fully appreciate the relation between the health of the pregnant woman and her unborn offspring and the insurance risk of the child or man, when insured at a later date, I am confident that we shall then have to aid us both the moral and the financial influence of these great powers.

The signs of the times already point to bettered conditions now or in the very near future, and the press, from which we are to hope for the greatest assistance in this matter, is alert to the importance of the question as is shown by a comment in the Chicago *Record-Herald*, in reporting a recent legal decision bearing on this matter. The comment reads:

> What we know as men, we cannot profess to be ignorant of as judges. . . . As weakly and sickly women cannot be the mothers of vigorous children, it is of the greatest importance to the public that the state take such measures as may be necessary to protect its women from the consequences induced by long, continuous manual labor in those occupations which tend to break them down physically. It would therefore seem obvious that legislation, which limits the number of hours which women shall be permitted to work to ten hours in a single day, in such employments as are carried on in mechanical

establishments, factories, and laundries, would tend to preserve the health of women and insure the production of vigorous offspring by them and would directly conduce to the health, morals and general welfare of the public, and that such legislation would fall clearly within the police power of the state.

There is another field of usefulness in this educational effort which has been touched on but sparsely in the literature at my command, but which appeals to me most strongly since, being in touch with primary education, I see its possibilities, and this is the public school. Hygiene is taught in the school in a general way, hygiene of the home and public hygiene, but the hygiene of early life, that which bears directly on the life and health of the infant is neglected. The girls of our schools to-day are not only the mothers of a short generation hence, but many are the "little mothers" of the poor at present. Why should they not be taught the care of the child and the general principles of feeding? The only reason is that its importance has not been sufficiently recognized. Some effort has been made in this direction in the playgrounds under the teaching of the caretakers there employed; but this instruction has not been taken directly into the schools. We all know the powerful influence of whatever is taught in the schools and the rapidity with which the pupil carries the lesson into the home and how reflexly the parent is influenced by the child's knowledge. Why should such an opportunity as is here afforded to spread information regarding the care of the infant be allowed to pass? This is especially important among the foreign element which grasps with such remarkable avidity anything which looks like improvement and suggests the acquirement of American civilization.

Finally, we physicians must realize that on us lies the burden of inaugurating this campaign and should institute a beginning as soon as possible. What more influential body of men is there in this country to-day than the American Medical Association? Why should we not make the greatest effort in this direction and be recognized as the leaders in the fight?

Taylor Building.

ABSTRACT OF DISCUSSION

DR. S. W. KELLEY, Cleveland, Ohio: Dr. Royster spoke of the short time for pediatrics in the college course, and of its being doubled up with some other branch of teaching in many colleges, being taught by the teacher of obstetrics or gynecology or toxicology or what not. These conditions, among others, have been taken up for consideration by the Association of American Teachers of the Diseases of Children and, after some studies of the subject two years ago a report was adopted at the session held in Atlantic City in June, 1909. This report declared, among other things, that "every medical college should have a chair of pediatrics. It should be a full professorship, quite independent; i. e., not subordinate to any other chair." The association declared also in favor of devoting as much time to pediatrics as to any other practical branch; that 10 per cent. of the third and fourth years, or not less than 190 hours, should be the minimum.

The Council on Medical Education of the American Medical Association has also taken some action recommending an increased allowance of time to 180 hours.

In the Association of American Medical Colleges, the Committee on Curriculum for the Clinical Years, at the meeting at Baltimore last March, advanced the time devoted to pediatrics from 100 hours to 150 hours. This has not yet gone into effect, but the report will be acted on next year and whatever is adopted will not merely be recommended but will become the law of the association as the minimum requirement. This time allowance, of course, does not come up to the ideal, but is certainly a very encouraging advance.

THE JOURNAL A. M. A. gives an account of the meeting of the College Association in brief abstract; it may interest you to hear that the report goes on to say that "the allowance for pediatrics is intended to include instruction in the exanthemata. In many other ways medicine and pediatrics overlap. Useless repetition can only be avoided by a proper understanding between the teachers of these two subjects, and a certain elasticity should be allowed a school for the purpose of assigning time to one subject or the other according to where the borderland subjects can best be taught. In the same way pediatrics and surgery touch and overlap. In one subject or the other the surgery peculiar to children should receive attention. Valuable suggestions in relation to the teaching of pediatrics will be given in an appendix to this report."

PUBLIC HEALTH ORGANIZATION IN NEBRASKA*

D. T. QUIGLEY, M.D.,
NORTH PLATTE, NEB.

The purpose of this paper is to report the organization of the public health officers of the State of Nebraska, to give the plan of the organization and to recommend the plan to other states where such a movement has not yet been made, rather than to recount the work already accomplished.

On June 8, 1909, in response to a call sent out, a large number of the city and county physicians of the state met in Omaha and organized what is now the Nebraska State Health Association. For several weeks before the meeting, and before the call was sent out, interest was aroused by the following letter, which was published in newspapers throughout the state:

HEALTH OFFICERS SHOULD ORGANIZE

North Platte, Neb.

To the Editor:—In line with the present rapidly developing sentiment in favor of the idea of preventing disease instead of attacking it after it has developed, and the spread of life-saving medical intelligence, I want to bring before the public the necessity of organization of the public health officers and the need of public support of such an organization after it has been effected. Much good would result if the public health officers of the state were organized and would hold regular meetings, where the ways and means for preserving public health might be discussed, improvements and advances noted, and the force of the organized body brought to bear on the enforcement of such regulation as might be necessary. City and county health officers have been inclined to be passive and very little work of an active and aggressive nature has been done; but, in view of the fact that an enormous amount of the diseases that now afflicts the people of our state could be absolutely prevented, it seems reasonable to suppose that one of the first steps to secure more nearly ideal health conditions would be perfection of such an organization as I have cited.

D. T. QUIGLEY, City Physician.

This was followed up by a letter to every city and county physician in the state as follows:

CALL FOR STATE MEETING OF THE PUBLIC HEALTH OFFICERS OF NEBRASKA

To all city and county physicians and other public health officers of the state of Nebraska:

Dear Doctor:—This circular letter is sent to every public health officer in the state for the purpose of effecting a state organization. The need of such an organization is apparent

* Read in the Section on Preventive Medicine and Public Health of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

when we realize that there is much to be gained in enforcing health regulations, if the city or county physician is backed up by a compact and well organized state association. This, however, is of minor importance compared with the benefits that will come to each community and the state by the wide dissemination of knowledge on preventive medicine that will result. The dominant note in all medicine to-day is prevention. There is much that is new in this field. Most of us can teach others something; we can all learn, and we shall all be better physicians and better health officers, if we get together and mix our experience and our learning. Nebraska, as a state, ranks first in the intelligence of her people; let us see that she ranks first in the intelligence of public health officers by making a good, strong association that will be a pattern for other states and do untold good by furthering the work of protecting our people from disease and death. We want to have this meeting as early as possible so as to get after the hot weather diseases, flies, etc., and that we may report what has been done at the Section on Hygiene of the American Medical Association at the Atlantic City meeting, June 8. The date set for this meeting, therefore, is June 7 and 8; the place, the Rome Hotel, Omaha. Return the enclosed postal, at once, stating whether or not you will be present. Get in as a charter member if possible. Charge your expense for the trip to your city or county. Very few will refuse to pay, if the benefit to the community from your presence at the meeting is explained to them.

DR. D. T. QUIGLEY, North Platte, Neb.

At this first meeting the subjects of tuberculosis, medical inspection of schools and the carrying of disease by insects, flies, etc., were taken up and fully discussed. As all the leading papers in the state had reporters at the meeting, the intelligence in regard to these diseases that was spread broadcast throughout the state amounted to a great deal, and health officers, even in districts not represented at the meeting, found it easier to enforce their regulations in regard to preventive measures. At the second meeting, which was held in Lincoln, a large number of persons who were not public health officers having become interested, the by-laws were so amended as to take in all interested outsiders as associated members, the only restriction being that they were not allowed to vote on any question involving the enforcement of any health regulations or rules. These associate members are very valuable in keeping up interest in health matters in their respective localities, and, in an association in which the active members hold office by political appointment usually only for one year, it seemed wise to make such a provision, if only to take care of the older members. The new health officer, coming in, is usually enthusiastic enough to seek membership, while the old one, going out, has learned to love the work well enough so that he will stay and give his colleagues the benefit of his experience. It will be seen that the possibilities for the growth of such an association are great.

The plan of the association is to spread knowledge of the prevention of disease in every way possible—by newspapers, lectures, etc. We expect to have a lecturer on public health at every chautauqua in the state this summer. The plan also includes the use of the influence of the association toward the passage of laws directed to the betterment of the public health, such as providing for a state lecturer on tuberculosis and venereal disease, the prevention of the marriage of the diseased, the idiotic and the insane, the prevention of the spread of disease by railroads, providing for medical inspection of schools, providing for quarterly bulletins to be issued by the state board of health and sent to every tax-payer in the state giving seasonable information on the prevention of disease, etc.

It will be seen that there is much to be done, and much can be done by an association like this in every state. I addressed the governors' conservation congress in March on the need for this kind of legislation and was very glad to see that the conservation of human life stirred up more interest than any other topic taken up by the assembly. All the recommendations made were incorporated into the resolutions adopted by the meeting. An association of this kind in every state giving its endorsement to such measures as Senator Owen's bill would help much toward the passage of favorable medical legislation.

THE PERMANENT ELIMINATION OF YELLOW FEVER*

J. H. WHITE, M.D
NEW ORLEANS

Where the means for combating any disease is made known, it is little less than criminal to let such agencies fall into disuse. The American Commission in Cuba placed the necessary knowledge directly at our disposal in 1900, and we have evolved the correct practice since that time to such extent that we no longer fear epidemic yellow fever, but there still remains a goodly share of the work to be done. Most of us have vaguely considered the question of total eradication—I among the rest—but no practical solution of all points presented itself to me until I recently had a talk with the one man who probably knows more of yellow fever than any other, and his remarks put me on the track of the final solution—to Dr. Carter, of our service, therefore, belongs entirely the credit for most that I shall say.

We find this disease in endemic and epidemic foci. Endemicity, to be maintained, demands:

(a) A sufficient birth rate to furnish a very steady, continuous supply of non-immunes (babies), and therefore demands for its habitat a city of considerable size, unless conditions are peculiar, as below.

(b) The supply of non-immunes may be existent in a smaller place through the presence of a constant influx of non-immunes from the back country. This is exactly the reverse of what has many times been stated, viz: that the Hinterland infected the coast town. This latter erroneous impression I think Carter was the first to contravene.

Now, if we accept these two as the necessary corollaries for endemicity, it is readily seen that once endemicity is destroyed, we can also destroy *pari passu* all chance of epidemic occurrence. It has been fully demonstrated at Habana, Santiago, Cienfuegos, Vera Cruz, Rio Janeiro, Colon, and Panama that epidemic centers can be eliminated.

We know that the remaining foci are Cartagena, Sabanilla, Baranquilla, Bahia, Manaos, Para, Pernambuco, Santos, Guayaquil, and possibly the capitals of British, Dutch, and French Guiana on the American continent, and one or two points at most on the Gulf of Guinea, in Africa.

The total population of all these places will not exceed 1,500,000, and I am fully justified in saying that 5 mills per diem per capita would cover the cost, even at American prices, of holding these places in sanitary control—which control continued for a space of three

* Read in the Section on Preventive Medicine and Public Health of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

years, at a total outlay of about $10,000,000, would mean that yellow fever, which has been the scourge of commerce for 400 years, would be no more, and maritime quarantine, save for plague alone, would become an unpleasant memory.

Such work would require cooperation with us on the part of the Latin-American countries and Great Britain, and, if Cayenne and Parimaribo are foci, of France and Holland; but I do not doubt the feasibility of obtaining all necessary cooperation, save for one of the Latin countries, since all but that one are on the best of terms with us, and even that one might be persuaded, in time.

The whole program could be summed up briefly as follows:

(a) Each center under one man's control, and he given full power to make a steady, insistent, and minutely exact fight on all Stegomyia breeding places.

(b) No attempt made to handle the sick, and so rouse the ire of the individuals.

(c) Be most careful to make it plain that subordinates shall annoy no one, and then see that they do not annoy.

The officer should approach the question of human carriers of the disease, if at all, solely through friendly suggestion to local authority, after getting on intimate terms, and then only to discreet officials, for fear of arousing opposition to his own particular work, which, in the end, would be absolutely sure of success. Could this be done, the medical profession would have to its credit an achievement that would be worth in money to the western world each year all of its cost, and to humanity more than can be estimated.

I wish to reiterate that I claim no originality in the foregoing, it being simply deductions from the splendid work of Colonel Gorgas, observations during my own work and, as before stated, Carter's suggestion. The idea of presenting such a conclusion having grown out of a statement made by Colonel Kean at the Atlantic City session in 1909, that we should wipe out yellow fever in ten years.

EXPERIMENTAL POLIOMYELITIS IN MONKEYS

EIGHTH NOTE: FURTHER CONTRIBUTIONS TO THE SUBJECTS OF IMMUNIZATION AND SERUM THERAPY *

SIMON FLEXNER, M.D.
AND
PAUL A. LEWIS, M.D.
NEW YORK

In our seventh note[1] on experimental poliomyelitis we treated of some of the phenomena of active immunization and passive serum protection in respect to epidemic poliomyelitis, and in this connection we wish to record some additional observations of the same general import. It can now be accepted as established that human beings and monkeys who have passed through an attack of poliomyelitis have come to contain in their blood certain neutralizing principles for the virus of poliomyelitis; that these principles are readily demonstrable by animal tests for two or more years in human beings, and that they probably persist for as great a period in monkeys. It has, moreover, been shown that monkeys which have recovered from an attack of poliomyelitis are highly refractory to reinoculation with the virus of poliomyelitis, and it is probable that the recovered human beings are similarly protected from reinfection. In both instances the attack has conferred a strong active immunity. But to have had and to have recovered from poliomyelitis is not the sole way in which an active immunity can be achieved, since it has been proved possible to immune monkeys actively by injecting into the subcutaneous tissue either the virus of full strength or one modified by chemical agents (for instance, glycerin).

ARTIFICIAL ACTIVE IMMUNIZATION

This mode of producing active immunity has not up to the present time been developed into a uniformly successful and safe method, since of the treated animals some do not develop a strong immunity and others develop paralysis as a result of the treatment.

The test of this active immunity thus far published consisted of the ability to resist a large intracerebral injection of the filtrate that in far smaller quantities produces paralysis in the control animals. The active immunity has been secured either from a single large subcutaneous injection of the crude or modified virus as represented by emulsions of the spinal cord taken from recently paralyzed monkeys, or by repeated injections of gradually increased amounts of the crude virus.

SERUM NEUTRALIZATION OF THE VIRUS

It has been shown that the blood-serum of human beings and monkeys that have recovered from an attack of poliomyelitis contains neutralizing principles for the virus of the disease, which principles are absent from normal serum. Moreover, it is safe to assume that these neutralizing substances are the indication and cause of the active immunity which is responsible for the refractory state of the animals to reinfection. Hence there should exist in the serum of the directly actively immunized animals, which have not been made to pass through an attack of poliomyelitis, similar neutralizing principles. When an active filtrate containing virus is mixed with the serum of actively immunized monkeys and incubated for a period at 37 C. it no longer sets up paralysis on being injected into the brain of normal monkeys.

In the previous neutralization experiments with monkey serum reported, the serum had been taken from animals in which, after recovery, reinforcement of the immunity had been attempted either purposely by subsequent injections of considerable quantities of active virus or had been circumstantially produced in the course of tests made to determine the existence of immunity to reinfection. We have since ascertained that without reinforcement the serum of monkeys that have recovered from the paralysis contains readily appreciable quantities of this principle. This experiment has established the fact that monkeys react precisely as human beings do in respect to the disease, since their serum as such after recovery possesses marked neutralizing power for the virus *in vitro;* and it indicates that the test would probably disclose the fact of an atypical attack of poliomyelitis such as is embraced in the so-called abortive type of the affection.[2]

* From the Laboratories of the Rockefeller Institute for Medical Research.

1. The previous articles have appeared in THE JOURNAL A. M. A., Nov. 13, 1909, p. 639; Dec. 4, 1909, p. 1913; Dec. 18, 1909, p. 2095; Jan. 1, 1910, p. 45; April 2, 1910, p. 1140; May 28, 1910, p. 1780; and Jour. Exper. Med., xii, 227.

2. Netter and Levaditi have indeed determined that the blood of a patient who had suffered an abortive attack of poliomyelitis contained the neutralizing principle.

EXPERIMENTAL SERUM THERAPY WITH MONKEY SERUM

In the seventh note we pointed out that the serum derived from immune monkeys that had passed through an attack of poliomyelitis possessed therapeutic properties for the experimental disease. It was stated that if the quantity of virus injected into the brain was not in excess of a given dose the development of paralysis could, in some cases, be prevented by making several injections of the serum, by lumbar puncture, into the subarachnoid space, and that infection by way of the nasal mucosa could also and with greater certainty be prevented by the serum injections. We have also ascertained that the serum of directly immunized monkeys possesses similar therapeutic properties.

EXPERIMENTAL SERUM THERAPY WITH HUMAN SERUM

That human serum derived from children who have passed through an attack of poliomyelitis possesses neutralizing power for the virus of poliomyelitis has been stated already; it can now be stated that it possesses therapeutic value also. When the subarachnoid injections are begun twenty-four hours after the intracerebral inoculation of the virus, the development of paralysis can be entirely prevented in a certain number of the animals, while in another number the onset of paralysis is much delayed.

The period of incubation in the control animals ranged from seven to eleven days and in some of the treated animals that finally became paralyzed it was as great as twenty-six and twenty-seven days. The serum injection begun twenty-four hours after the inoculation, was carried out on three successive days, after which an interval of three days was allowed to pass, when three more daily injections were given. It seems probable that had the injections been resumed after another interval of rest the last vestige of the virus in the tissues would have been destroyed.

NEUTRALIZED VIRUS PRODUCES NO IMMUNITY

We have seen that actively immunized monkeys, the result of obvious disease and paralysis, or the product of gradual or abrupt accommodation to the virus, not only yield a serum that contains neutralizing properties for the virus, but are themselves highly refractory to reinfection with a highly potent virus. The fact has been repeatedly observed that failure to develop paralysis after an intracerebral inoculation of an active virus does not lead to any increase in resistance of the monkeys to subsequent infection by the same route. The animals which have once withstood an inoculation respond on another occasion as readily as the control animals. No explanation for this discrepancy has been found.

It is of interest, therefore, to learn that monkeys which have been protected from paralysis through the employment of mixtures of virus and immune serums, or as result of treatment by subarachnoid injections of immune serums, do not exhibit any unusual degree of resistance to subsequent intracerebral injections of active virus made at periods of several weeks to four or five months after the condition of the original experiments. Three important points are developed by this fact: that neutralized mixtures of virus and immune serum do not lead to any degree of active immunization; that the therapeutic action of the serum is associated with restraint of multiplication of the virus such as would be required to establish any grade of active immunity; and that a simple passive immunity is either not produced by the serum injections, or is of brief duration or small amount.

ARTIFICIAL IMMUNE SERUM

We have continued our efforts to produce an immune serum in some of the lower animals that might possibly become the source of a therapeutic serum. This work is being actively pursued at present, but we wish to report on an indication in the direction of our search. It has been found that normal sheep serum possesses a definite although slight neutralizing power for the filtered virus, and that the injection of emulsions of the spinal cord and brain of recently paralyzed monkeys into the sheep augments this property of neutralization.

The serum treatment of poliomyelitis is at present in the experimental state, and how soon, or whether ever at all, it will be applicable to the spontaneous disease in human beings cannot be predicted.

Sixty-sixth Street and Avenue A.

NOTES ON THE TECHNIC OF TRANSFUSION OF BLOOD

J. SHELTON HORSLEY, M.D.
Professor of Principles of Surgery and Clinical Surgery in the Medical College of Virginia; Surgeon to Memorial Hospital
RICHMOND, VA.

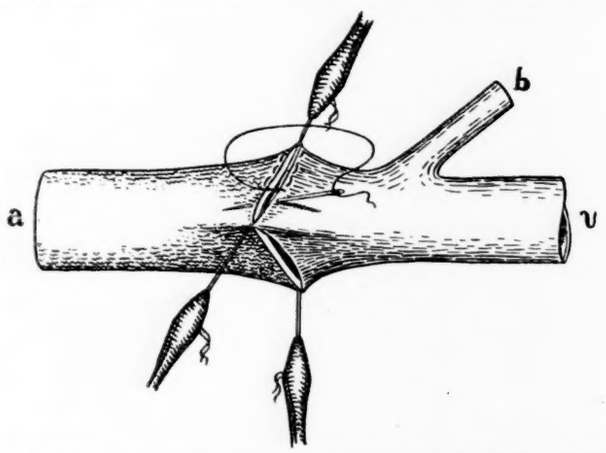
Transfusion of blood has been brought into prominence in the last few years as an emergency life-saving measure. This operation has been developed by Carrel, Guthrie, Crile and others to such a point as to render its performance quite satisfactory in the hands of an average surgeon who has done enough experimental work on the lower animals to perfect his operative technic. Its advantages have been so well demonstrated by clinical use that its position among surgical procedures is assured. In two kinds of cases it is particularly appropriate. The class of cases exsanguinated to such an extent that even when the volume of blood is increased by salt solution life cannot be maintained, can be saved only by transfusion of blood. The other group consists of patients who have been so enfeebled by disease that they cannot stand the operation necessary to cure them. Here transfusion of blood increases the resistance of the patient and often enables him safely to undergo surgical procedures that otherwise would probably be fatal. The field may yet be widened, but the above two classes of cases already constitute a sufficiently broad field to render the operation one that should be frequently performed.

The similarity between the development of arterial suture and the evolution of intestinal suture is very striking. When intestinal surgery began to come to the front there was a host of mechanical devices, of which the Murphy button was the most prominent. As experience increased it was seen that, other things being equal, the simpler an apparatus was the more desirable it would be. Gradually it was found that everything that could be accomplished by a mechanical contrivance could be equally well done with a needle and thread. Consequently mechanical contrivances are now rarely used in intestinal surgery. In arterial suture, as in the transfusion of blood, there is likewise a host of devices, of which the cannula of Crile is the most prominent. After the technic of arterial suture develops the various rings, forceps and cannulas will probably be discarded, as was the case in intestinal surgery, and the needle and thread will be adopted. Arterial suture requires experimental

work on the lower animals to even a greater degree than intestinal suture, but with this experimental experience arterial suture with a needle and thread is safer than with any mechanical device.

In the illustration one or two points are shown that have occurred to me while suturing blood vessels or transfusing blood. When transfusion of blood is done the vein should be selected near a point where it gives off a branch. In this way, after the transfusion has been performed, if a clot forms at the suture line, the finger can be placed on the main trunk of the vein, the branch unclamped, and the eye of a threaded needle can be thrust through this branch and made to break up the clot at the suture line. With the finger still on the main trunk of the vein, the force from the artery will pump the broken-up clot through the small venous branch. In this way it will be prevented from going into the circulation and producing an embolism. No bruising of the delicate intima is done by this procedure, as is the case when the site of the transfusion is too forcibly stripped with the fingers.

The method of Carrel, by which three sutures are inserted at equal distances along the circumference of the vessels and used as tractors, is excellent. Instead of using the over-hand suture, however, a running mattress



In this illustration *a* represents the artery, which is being sutured to the vein *v*. At *b* a small branch of the vein is shown, which is bent back in such a position that the eye of a threaded needle can be thrust through it and break up a clot which may form at the point of suture. A continuous mattress suture is shown uniting the artery and vein.

suture may be employed, as shown in the cut. This makes more satisfactory apposition of the intima and leaves less of the thread exposed to the blood stream. If the original tractor sutures are not tied too tightly they can be cut out after the operation has been completed. Pulling on these sutures is likely to injure the intima and to leave a point at which a clot will easily form. The mattress suture can go somewhat deeper and approximate the healthy intima, so covering up the point in the arterial coat where the tractor suture penetrates. If anyone will recall the difference in the appearance of an intestinal wound when sutured by a right angle continuous suture and an intestinal wound sutured by the ordinary running over-hand suture he can readily appreciate that in the latter method much more thread is exposed than when the right angle suture is used. The mattress suture, as used in arterial suturing or for transfusion of blood, produces the same appearance on the inside of the blood vessel as the right angle continuous suture does on the outside of the intestine.

303 West Grace Street.

A NEW METHOD OF INFLATING THE STOMACH

STEWART LEWIS, M.D.
PINE TREE INN, LAKEHURST, N. J.

The method of inflating the stomach described below seems absurdly simple, yet I have found it of much practical value.

Procedure.—The patient is placed on the examining table, the abdomen exposed, a towel arranged under the chin and a siphon of carbonated water rested on the shoulder with the nozzle at the patient's lips. These instructions are given:

"I wish you to drink some of this carbonated water in order to get some gas into the stomach, which will swell it a little and help my examination. Please manage the siphon yourself; drink very slowly at first so as not to choke yourself and then drink as rapidly as you can. I will tell you when to stop."

The average patient will thus take eight ounces or more without difficulty. In favorable cases even half this amount will bring the outline of the stomach clearly into view, while the mixture of gas and fluid gives to palpation a crackling feel and typical splash apparent to the most inexperienced.

Difficulty is found in the following cases:

1. Obesity.—Comparison of percussion outlines before and after inflation will rarely leave one in doubt.

2. Relaxed Pylorus.—In these cases the gas rapidly escapes into the small intestine. With a little practice one readily understands this condition and the observation is itself of value. The inexperienced may here be led to wrongly make a diagnosis of misplaced stomach. Percuss carefully during the inflation.

Method of Percussion.—I prefer to employ direct percussion with a small wooden object such as a lead pencil, or, better, a flat object such as a paper knife or wooden-handled scalpel. With this, working from below upward, the abdominal wall is struck so as to produce a "spat," superficial, high-pitched. This sound is transmitted only to the viscus directly underlying. Gastric tympany is clearly differentiated.

The following objects are attained:

1. Size and position are accurately determined.

2. With practice some idea of gastric tone may be obtained. Roughly speaking, four ounces of fluid will lower the border of the normal stomach about an inch. In atony it may lower the border two or three inches.

3. As noted above, rapidity of escape of gas into the intestine will be a crude test of the tone of the pylorus.

4. Tumors may be more readily palpated.

I have practiced this method in about fifty cases and have quite carefully compared it with results obtained by other methods of inflation, by progressive water-drinking and in a few cases by transillumination with Einhorn's gastro-diaphane, aided by fluorescein solutions.

The following advantages appear to me:

1. It is safer.

2. It is much less unpleasant. I have never had a patient object.

3. It is, in my opinion, efficient.

If these claims are verified I strongly urge the adoption of this test, especially for office work, as I believe many errors in diagnosis may thus be avoided. In one case in which pyloric carcinoma had been diagnosed by three clinicians the method showed at a glance a case of vertical stomach while the gas could be plainly felt passing through a normal pylorus located in the right iliac fossa. I hope for a thorough test of the method by those of larger opportunity.

Therapeutics

GLYCOSURIA IN ELDERLY PERSONS

Under this heading Dr. Victor C. Vaughan of Ann Arbor, Mich. (*New York Med. Jour.,* Feb. 26, 1910), well urges that small amounts of sugar in the urine, even in elderly persons, should be considered important and more or less serious. He is right in believing (some clinicians to the contrary notwithstanding) that even small quantities of sugar should be considered pathologic and the patient's diet properly regulated. Small amounts of sugar in the urine will surely lead, under careless diet, to a greater amount and more serious condition. Life will therefore be prolonged if the urine of elderly people is occasionally examined and dietetic errors, discovered by such careful examination, corrected.

As Vaughan states, we are pretty generally alive to protein poisoning, so much discussion on this subject has taken place, but we are not positively sure that large amounts of carbohydrates cannot cause almost as serious disturbance. A large sugar and starch eater may take care of his extra amount of these foods for a time and probably put on weight, but sooner or later sugar is likely to appear in the urine. This shows that there is an excess of this food beyond the ability of the glands and tissues to utilize it, and, while such an overflow in the urine should perhaps not be termed pathologic, it certainly is unphysiologic and abnormal.

Vaughan thinks the carbohydrates most abused in this country are cane sugar and wheat starch, and these are the ones for which the individual most frequently loses the capability of assimilation, and it is these two substances that under these conditions are really poisonous to the patient. The ability to work these substances into fat or to have these substances protect the fat is lost, the patient begins to lose weight, passes sugar in the urine, becomes thirsty, and dietetic glycosuria, due to an insufficiency of the organs concerned in the carbohydrate metabolism, is in evidence. This metabolism may be sufficient for a small amount of starch, but is insufficient for the amount taken. If the patient persists in taking this excessive amount of starch sooner or later the actual disease, or diabetes mellitus, will be in evidence.

We like to call sugar in the urine a glycosuria, either dietetic glycosuria or functional glycosuria, provided the sugar may be removed by an arrangement of the diet. If, on the other hand, sugar persists in the urine on an absolutely starch-free and sugar-free diet, in other words, if the sugar is metabolized from protein, disease is present, and the name for it is diabetes mellitus. It can be readily seen that the borderline between a dietetic glycosuria and the actual disease is at times very narrow, and the condition must readily pass into the disease; in other words, permanent insufficiency of the organs for the proper metabolism or utilization of starch and sugars.

Vaughan shows how such a patient should be dietetically studied to see which particular starch he can metabolize and which not, and then to arrange the diet for the immediate present accordingly. His future diet is largely arranged according to how well it is found that he can properly metabolize small amounts of starch and which starch he metabolizes the best. He also emphasizes what is not sufficiently considered, and that is, the value of muscle rest and fresh air treatment in diabetes.

The following is the clinical history of a patient who personifies the value of Vaughan's suggestions. This patient, Mrs. C., aged 70, came under observation Jan. 30, 1910, with a history of excessive thirst, loss of weight, great weakness, uncontrollable itching; all of this of several months' duration, and gradually increasing in severity. Her eyesight was defective, due to slowly developing cataracts. Previous history was negative and family history was negative. Physical examination showed nothing abnormal, except eczema on various parts of the body, and especially on the vulva, where the itching and irritation was such that she could not sleep at night. The urine showed 5.5 per cent. of sugar. The amount of urine was never excessive, either at this time or throughout the treatment, varying from 1,200 to 1,500 c.c. in twenty-four hours. She was put under careful observation on a diet whose starch and sugar content was gradually and systematically diminished. It is always safer to diminish the starch and sugar slowly than rapidly, lest toxic acidosis be caused. The urine rarely showed diacetic acid or betaoxybutyric acid and but a small amount of acetone. The general management was an increased amount of butter, some milk, frequent warm baths, daily massage of the body with olive oil, and rest in the open air. The only medicament was two or three drops of the tincture of the chlorid of iron three times a day. Under the regulated diet the sugar reduced gradually in percentage: 4.6, 4.8, 2.3, 1.8, 1.6, 1.0, 0.9, by early in March. Even on an absolutely sugar-free and starch-free diet there was always a little sugar in the urine, which by March 30 had reached 0.4 per cent. and remained there. The patient complained of being hungry and chilly, and, as a trace of albumin appeared in the urine, it seemed advisable not to push protein, but to gradually find which starch she digested the best. She was then allowed first one slice and then two slices of toasted bread a day. This caused at first a little more sugar to appear in the urine, 1.6 per cent., but it soon dropped again to 0.7. She was then changed to a heaping tablespoonful of oatmeal a day and the bread stopped. The urine under this food contained 0.4 per cent. of sugar, the same as on a pure protein diet. She was then tried with one potato a day and the oatmeal stopped. This gave an average of from 0.7 to 0.9 per cent. sugar. She then was allowed oatmeal in the morning and a slice of toast at night, and she averaged about 0.7 to 0.9 per cent. of sugar. Finally she was allowed a small dish of oatmeal in the morning, one potato at noon and one large or two small slices of toasted bread at night, the rest of the diet being starch-and-sugar-free. On this she thrived, with an average of from 0.5 to 0.7 and 0.8 per cent. of sugar, with no itching, no thirst, added some pounds of weight, slept well, was not nervous and was perfectly comfortable. She has followed this diet to the present date, and examination of the urine on July 10, 1910, shows only a bare trace of sugar. After the first month of treatment she was urged to drink more water, as she was not thirsty and did not really take sufficient water to saturate her tissues.

The itching and eczema rapidly disappeared from all parts of the body except the vulva. Here almost every recommended local treatment was tried to stop the excessive itching which kept her awake, but nothing was of much avail even after the sugar had practically disappeared from the urine, until a wash of yeast was used. This was made by dissolving an ordinary tin-foil yeast cake in a pint of water. This was used to bathe the vulva with two or three times a day, and the itching disappeared as if by magic and has never returned. This wash was used occasionally for a long time, until

the eczema entirely disappeared. The medicaments and lotions tried to relieve this itching of the vulva were oils (bland and medicated), powders, ointments, witch hazel, phenol, zinc, lead, bicarbonate of soda solutions, menthol preparations, etc.

It is almost fair to assume that this woman, who is perfectly comfortable on the present diet and suffering no symptoms from the diabetes, will not die, under this management, from this disease. The story of this patient shows what can be done to make a patient with glycosuria not only comfortable but all but well.

New and Nonofficial Remedies

SINCE THE PUBLICATION OF THE BOOK "NEW AND NONOFFICIAL REMEDIES, 1910," THE FOLLOWING ARTICLES HAVE BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK ARE ASKED FOR.

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT SO FAR AS KNOWN IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

(*Continued from page 503*)

DIASPIRIN.—Diaspirin is succinyl disalicylic acid, $CO(O.C_6H_4.COOH).CH_2.CH_2.CO(O.C_6H_4.COOH)$.

Diaspirin is a salicylic acid derivative, produced by the interaction of the two carboxyl groups of succinic acid with the phenolic hydroxyls of two molecules of salicylic acid, with the elimination of 2 molecules of water, thus: $COOH.CH_2.CH_2.COOH + 2HO.C_6H_4.COOH = CO(O.C_6H_4.COOH).CH_2.CH_2.CO(O.C_6H_4.COOH) + 2H_2O$.

It is prepared by the action of succinyl dichloride upon salicylic acid.

Diaspirin is an odorless and almost tasteless white crystalline powder, said to melt at about 178° C. (352.4 F.) (Specimens examined by the Council were found to melt at 168° C. Corr.) Soluble with difficulty in cold alcohol and glacial acetic acid; scarcely soluble in water. By heating with caustic alkalies it decomposes into succinate and salicylate. Diaspirin is a dibasic acid which reacts with bases, organic or inorganic, to form salts.

Diaspirin produces the effects of salicylates. The following special claims are made for it: That it passes unchanged through the stomach, producing no irritation, but is split into its constituents in the intestine; that it exerts a strong diaphoretic effect.

Actions and Uses.—The same as those for salicylic acid.

Dosage.—1 Gm. (15 grains) three or four times daily.

Manufactured by the Farbenfabriken vorm. Friedr. Bayer & Co., Elberfeld, Germany. (Farbenfabriken, of Elberfeld Co., New York). U. S. patent No. 874, 929. U. S. trademark applied for.

FERRATIN—Sodii Ferrialbuminas.—Sodium Ferrialbuminate.—Ferratin is the sodium salt of ferrialbuminic acid, containing iron in the ferric state in organic combination, equivalent to 6 per cent. metallic iron.

Sodium ferrialbuminate occurs naturally in the organs of mammals, especially in the liver. Ferratin is prepared from egg albumin and chemically pure iron salts in the presence of alkalies.

Ferratin is a light brown, tasteless powder, having a faint odor. It is soluble in weak alkaline aqueous solutions, from which solutions it is precipitated by hydrochloric acid. On dissolving 0.3 Gm. ferratin in 10 Cc. of water with the aid of a few drops of ammonia water, and then adding an equal volume of a 25 per cent. potassium carbonate solution, no precipitation occurs.

Actions and Uses.—See Organic Iron Compounds.

Dosage.—0.5 Gm. (7½ grains) three to four times daily.

Manufactured by C. F. Boehringer & Soehne, Waldhof, Mannheim, Germany. (Merck & Co., New York). U. S. patent No. 505986. U. S. trademark No. 24,228.

ARSENOFERRATIN—Sodii Arsenoferrialbuminas.—Sodium Arsenoferrialbuminate.—Arsenoferratin is an arsenic iron albumin compound, obtained by introducing the element arsenic into the molecule of ferrialbuminic acid. Arsenoferratin contains iron in the ferric state, in organic combination equivalent to 6 per cent. metallic iron and arsenic, equivalent to 0.06 per cent. elementary arsenic.

Arsenoferratin is a brown, almost odorless and tasteless powder. It is soluble in water and easily soluble in dilute alkaline solutions.

Actions and Uses.—Arsenoferratin has the pharmacologic action of organic compounds of iron and of arsenic.

Dosage.—0.5 Gm. (7½ grains) three to four times daily.

Manufactured by C. F. Boehringer & Soehne, Waldhof, Mannheim, Germany. (Merck & Co., New York). U. S. trademark No. 24,228.

Arsenoferratin Tablets.—Each tablet contains arsenoferratin 0.25 Gm. (4 grains).

Arsenoferratose.—Liquor Ferratini Arsenati.—Arsenoferratose is a 5 per cent. solution of arsenoferratin.

Arsenoferratin, 5 parts, is dissolved with the aid of a small quantity of sodium hydroxide in water, 68 parts, glycerin, 20 parts, alcohol, 6 parts, and Angostura essence, 1 part.

Dosage.—4 to 8 Cc. (1 to 2 fluidrams) three to four times daily.

For the determination of Iron and Arsenic in Arsenoferratose, the following methods are furnished:

Twenty-five Cc. of arsenoferratose are evaporated to a viscid consistency in a capacious tared crucible and the residue heated in a drying oven at 100 degrees C. for three hours to constant weight. After the crucible and its contents have been allowed to cool in a desiccator, it is weighed. The weight of the evaporated residue multiplied by 4 should be about 23. The weighed residue is now carefully incinerated, and finally ignited. After it has cooled, it is moistened with nitric acid, and again ignited, and finally taken up with 10 Cc. hydrochloric acid. The solution is diluted with 30 Cc. water, and when cold, 3 Gm. potassium iodid are added and the mixture allowed to stand for an hour in a well-stoppered bottle at the ordinary temperature. It is then titrated with decinormal sodium thiosulphate solution. The iodin liberated should require about 12.5 Cc. of tenth normal thiosulphate solution.

Fifty Cc. of the arsenoferratose contained in a distillation flask of about 500 Cc. capacity, are heated on a water bath and evaporated to about one-third of its original volume. To the residue are now added 80 Cc. of arsenic-free concentrated hydrochloric acid and 20 Cc. arsenic-free, 25 per cent. solution of ferrous chloride, and the arsenic chloride distilled over, the receiver being kept well cooled by means of cold water. The contents of the receiver are then supersaturated with sodium bicarbonate, and the arsenic then titrated with the tenth-normal iodin solution: 0.4 Cc. decinormal iodin solution should be required, corresponding to a content of 0.003 Gm. in 100 Cc. arsenoferratose.

THIGENOL.—Solution of Sodium Sulpho Oleate, Roche.—Thigenol is a solution of the sodium salts of synthetic sulphooleic acids, containing 2.85 per cent. sulphur.

Precipitated sulphur is dissolved by boiling in the glyceride of oleic acid; the resulting solution is treated with sulphuric acid, during which process sulphurous acid escapes, and a sulpho-oleic acid is separated out. The separated sulpho-acid is then obtained by pouring into water, and subsequently washing thoroughly. By treatment with solution of sodium hydroxide, there results a solution of sodium sulpho-oleate, which is evaporated in vacuo until it has a specific gravity of 1.05 to 1.06.

Thigenol is a dark brown liquid, having a faint sulphurous odor. It is soluble in one or more parts of water, dilute alcohol, glycerin, chloroform, oily or fatty bases, with any one of which it mixes freely. When water is the vehicle employed, it should be distilled; hard water will cause a precipitate. Thigenol is incompatible with mineral acids or acetic acid.

Actions and Uses.—Thigenol is said to have the actions of sulphur. It is claimed to stimulate granulation, restrict secretions and to be antipruritic.

It is used in diseases of the uterus and its appendages and in skin diseases in which sulphur is commonly employed.

Dosage.—0.2 to 0.6 Gm. (3 to 10 grains) in plain or sweetened water. Thigenol is used locally either in the pure state or mixed in any desired proportion with ointment bases, fats or glycerin according to the intensity of action required.

Manufactured by F. Hoffmann-LaRoche & Co., Basel, Switzerland. (The Hoffmann-LaRoche Chemical Works, New York). U. S. trademark No. 42,295. Not patented.

SUPRACAPSULIN.—The name used for epinephrine by The Cudahy Packing Co., South Omaha, Neb.

Not patented. U. S. trademark No. 72,580.

Supracapsulin Solution.—A solution 1:1000 of supracapsulin in normal salt solution with small quantity of sulphite and 0.5 per cent. of chloral.

(*To be Continued*)

MEDICAL COLLEGES OF THE UNITED STATES

Data Prepared by the Council on Medical Education

Below are given brief descriptions of the medical colleges in the United States and Canada that are legally chartered to teach medicine, several of which do not grant degrees. The name, address, year of organization, history and date when first class graduated is given in each instance. Unless otherwise stated, a class graduated each subsequent year. Where official reports have been received from the college, information regarding faculty, entrance requirements, length of term, fees, students (excluding specials and postgraduates), graduates, name of dean and next session is given without discrimination, regardless as to whether the college is sectarian or not. In a few instances where such reports were not received the information published is from other reliable sources. Extracts of rules and the membership of the Association of American Medical Colleges is shown following the list of colleges. Figures showing population of cities and states are taken from the United States Census Bureau's estimates for 1909.

ALABAMA

Alabama, population 2,112,465, has two medical colleges, the Medical Department of the University of Alabama and the Birmingham Medical College, located, respectively, in Mobile and Birmingham. The population of Mobile is 45,122 and of Birmingham, 49,553.

Birmingham

BIRMINGHAM MEDICAL COLLEGE, Avenue F and Twentieth Street. —Chartered in 1894. The first class graduated in 1895. There are 22 professors and 12 assistants, total 34. The course of instruction embraces four separate sessions of eight months each. The fees are $100 for each of the first three years and $125 for the fourth. The Dean is Dr. B. L. Wyman. Registration, 1909-10, 209; graduates, 23. The seventeenth session begins Sept. 28, 1910, and ends May 26, 1911.

Mobile

UNIVERSITY OF ALABAMA SCHOOL OF MEDICINE, St. Anthony and Lawrence Streets.—Organized in 1859 as the Medical College of Alabama. Classes were graduated in 1861 and in all subsequent years except 1862 to 1868, inclusive. It was reorganized as the Medical Department of the University of Alabama in 1897. All property was transferred to the University of Alabama in 1907. Present title assumed in 1909. The faculty consists of 8 professors and 17 lecturers and assistants, a total of 25. The course of study covers four years of seven months each. The total fees for each of the first three years is $100; for the fourth year, $125. The Dean is Dr. Rhett Goode. The total registration for 1909-10 was 179; graduates, 40. The forty-fifth session begins Sept. 19, 1910, and ends May 9, 1911.

ARKANSAS

Arkansas, population 1,476,582, has two medical colleges, the Medical Department of the University of Arkansas and the College of Physicians and Surgeons, both located in Little Rock, a city of 43,688.

UNIVERSITY OF ARKANSAS MEDICAL DEPARTMENT, Second and Sherman Streets.—Organized in 1879 as the Medical Department of Arkansas Industrial University. The first class graduated in 1880. It assumed the present title in 1899. The faculty consists of 22 professors and 16 lecturers and assistants, total, 38. The course of study covers four years of eight months each. The fees are $100 for each of the first three years and $125 for the fourth year. The secretary is Dr. C. E. Witt. Total registration, 1909-10, was 171; graduates, 26. The thirty-second session begins Sept. 15, 1910, and ends May 6, 1911.

COLLEGE OF PHYSICIANS AND SURGEONS, Lincoln Avenue, north of the Union Station.—It was organized in 1906. The first class graduated in 1907. The faculty consists of 28 professors and 12 lecturers and assistants, a total of 40. The course of study covers four years of seven months each. The fees are $100 for each of the first three years and $125 for the fourth year. The Dean is Dr. J. P. Runyan. The total registration for 1909-10 was 104; graduates, 29. The fifth session begins Oct. 1, 1910, and ends May 1, 1911.

CALIFORNIA

California, population 1,729,543, has eight medical colleges. Four are located in San Francisco, a city of 400,000 inhabitants. They are Leland Stanford Junior University College of Medicine, Medical Department of the University of California, Hahnemann Medical College of the Pacific and the College of Physicians and Surgeons. The College of Physicians and Surgeons and the California Eclectic Medical College and the Los Angeles Clinical Department of the University of California are situated in Los Angeles, population 300,000. The Oakland College of Medicine and Surgery is in Oakland, population 225,000. The College of Medical Evangelists is located at Loma Linda, a village near San Bernardino, this latter place having a population of 13,500.

Loma Linda

COLLEGE OF MEDICAL EVANGELISTS.—Organized in 1909. The faculty numbers 10. The course extends over five years of nine months each, but includes a study of the Bible, pastoral training and other non-medical subjects. The total fees each year are $100: matriculation fee, $5, payable but once; graduation fee, $10. The Dean is Dr. George Knapp Abbott. The total registration for 1909-10 was 10; no graduates. The second session begins Sept. 29, 1910, and ends June 27, 1911.

Los Angeles

COLLEGE OF PHYSICIANS AND SURGEONS, MEDICAL DEPARTMENT, UNIVERSITY OF SOUTHERN CALIFORNIA, 516 East Washington Street. —Organized in 1903, first class graduated in 1905, became Medical Department, University of Southern California August 11, 1909. The course covers four years of nine months each. The faculty consists of 12 professors and 32 associate professors, lecturers and instructors, a total of 44. The fees are $150 per year, not including matriculation fee, paid but once, $5, and graduation fee, $25. The Dean is Dr. Charles W. Bryson, Delta Building, Los Angeles. The registration for 1909-10 was 69; graduates, 12. The next session begins Sept. 14, 1910 and ends June 15, 1911.

CALIFORNIA ECLECTIC MEDICAL COLLEGE, 846 Lyon Street.—Organized in 1879 at Oakland as the California Medical College. Removed to San Francisco in 1887. Suspended in 1906. Reorganized at Los Angeles with the present title in 1907. Classes were graduated in 1880, and in all subsequent years except 1907. It has a faculty of 30 professors. The Dean is Dr. J. A. Munk. The registration for 1909-10 was 22; graduates 2. The 32d session begins Sept. 19, 1910, and ends May 18, 1911.

Oakland

OAKLAND COLLEGE OF MEDICINE AND SURGERY, Thirty-first and Grove Streets.—Organized in 1900, opened in 1902. The first class graduated in 1906. The faculty numbers 33. The course covers four years of nine months each, and the classes are limited to ten students each. The total fees for each of the four years respectively are $210, $200, $150 and $150. The Registrar is Dr. Edward N. Ewer. The total registration for 1909-10 was 20; graduates, 3. The ninth session begins Aug. 15, 1910, and ends May 20, 1911.

San Francisco

HAHNEMANN MEDICAL COLLEGE OF THE PACIFIC, Homeopathic, Sacramento and Maple Streets.—Organized in 1881 as the Hahnemann Medical College. The first class graduated in 1884. In 1888 it became the Hahnemann Hospital College of San Francisco. It assumed the present name in 1902. It has a faculty of 26 professors and 16 lecturers, instructors, etc., a total of 42. The course covers four years of seven months each. Total fees for the first year are $155, and $100 for each of the other three. The Dean is Dr. James W. Ward, 1380 Sutter Street. The total registration for 1909-10 was 34; graduates, 1. The 29th session begins Aug. 11, 1910, and ends April 27, 1911.

COLLEGE OF PHYSICIANS AND SURGEONS, 344 Fourteenth Street. —Organized in 1896. The first class graduated in 1897. The faculty numbers 60. The course covers four years of nine months each. The fees are $150 each year. The Dean is Dr. Ethan H. Smith. Registration for 1909-10 was 29; graduates, 7. The fifteenth session begins Sept. 1, 1910, and ends June 1, 1911.

San Francisco-Palo Alto

LELAND STANFORD JUNIOR UNIVERSITY, DEPARTMENT OF MEDICINE, University Campus, Palo Alto, and Sacramento and Webster Streets, San Francisco.—Organized in 1858 as the Medical Department of the University of the Pacific. Discontinued in 1864. Revived in 1870. It became the Medical College of the Pacific, Medical Department of the University College of San Francisco in 1873. Became Cooper Medical College in 1882. A class was graduated in 1860 and in each subsequent year except 1865 to 1869, inclusive. In 1908 an agreement was made to unite with the Leland Stanford Junior University. By the terms of this agreement Cooper Medical College would continue to teach until the classes which entered prior to August, 1909, had been graduated. The last class will be graduated in 1912. Three years of collegiate work are required for admission. During the next session the work of the first and second years will be given at Palo Alto and the third and fourth years at San Francisco. The faculty of the combined schools consists of 39 professors and 35 lecturers, assistants, etc., a total of 74. The course covers four years of nine months each. The total fees for each of the first and second years are $175; for the third

year, $170, and for the fourth year, $185. The Secretary of the faculty is Dr. Emmet Rixford, San Francisco. The total registration for 1909-10 was 95; graduates, 17. The next session at Palo Alto begins Aug. 25, 1910, and ends May 22, 1911. At San Francisco, the next session begins Aug. 15, 1910, and ends May 5, 1911.

San Francisco-Berkeley-Los Angeles

UNIVERSITY OF CALIFORNIA MEDICAL DEPARTMENT. University Campus, Berkeley; Second and Parnassus Avenues, San Francisco and Buena Vista and Alpine Streets, Los Angeles.—Organized in 1863 as the Toland Medical College. The first class graduated in 1865. In 1872 it became the Medical Department of the University of California. In 1909 it absorbed the College of Medicine of the University of Southern California, which became a clinical department at Los Angeles. Two years of collegiate work are required for admission. The work of the first two years is given at Berkeley and the work of the last two years at either Los Angeles or San Francisco. The faculty is composed of 33 professors and 84 associates and assistants, a total of 84. The course covers four years of nine months each. The fees are: Matriculation, $5; tuition, $150 each year. The Dean at San Francisco is Dr. Arnold A. D'Ancona; at Los Angeles, Dr. W. Jarvis Barlow. Total registration of the two schools for 1909-10 was 107; graduates, 13. The 38th session at San Francisco begins Aug. 22, 1910, and ends May 17, 1911. The next session at Los Angeles begins Sept. 15, 1910, and ends May 31, 1911.

COLORADO

Colorado, with a population of 653,000, has two medical colleges. The Denver and Gross College of Medicine is in Denver, which has a population of 156,726, and the Colorado School of Medicine is at Boulder, population 12,000. These two schools will be merged Jan. 1, 1911, in case the amendment to the state constitution is secured giving the State University the right to teach medicine in Denver.

Boulder

UNIVERSITY OF COLORADO SCHOOL OF MEDICINE.—Organized in 1883. Classes were graduated in 1885 and in all subsequent years, except 1898 and 1899. The faculty embraces 23 professors and 20 lecturers and assistants, a total of 43. The work embraces a graded course of four years of nine months each. The entrance requirements are two years of college work counting toward a degree in arts in an accredited college or university. The tuition is $75 per year; there are no other fees. The Dean is Dr. William P. Harlow. The total registration for 1909-10 was 77; graduates, 8. The twenty-ninth session begins Sept. 12, 1910, and ends June 7, 1911.

Denver

THE DENVER AND GROSS COLLEGE OF MEDICINE, 1025 Fourteenth Street.—It is the Medical Department of the University of Denver. Organized in 1902 by the union of the Gross Medical College (organized in 1887) with the Denver College of Medicine (organized in 1880). Classes were graduated in 1903 and in all subsequent years. This college will be merged into the University of Colorado School of Medicine Jan. 1, 1911, when the clinical year of the latter school will be removed to Denver. Fees for each of the last two years, respectively, are $103 and $126. The Dean is Dr. George H. Stover, 1443 Glenard Place. The total registration for 1909-10 was 117; graduates, 21. The thirtieth session begins Sept 12, 1910, and ends June 7, 1911.

CONNECTICUT

Connecticut, with a population of 1,054,336, has only one medical college, located in New Haven, population 127,827.

New Haven

YALE MEDICAL SCHOOL, York and Chapel Streets.—This is the Department of Medicine of Yale University. In 1810 a charter was granted for the establishment of this school, and 1813 it was organized as the Medical Institution of Yale College. The first class graduated in 1814. The faculty consists of 16 professors and 50 lecturers and assistants, a total of 66. The requirement for admission is two full years of collegiate work plus evidence of satisfactory preparation in physics, general inorganic chemistry and general biology. The course covers four years of nine months each. The fees are $150 each year; in the first year there are additional fees amounting to $23, and in the second $3, and there is a graduation fee of $10. The Dean is Dr. George Blumer, New Haven. The total registration for 1909-10 was 124; graduates, 27. The ninety-eighth session begins Sept. 29, 1910, and ends June 21, 1911.

DISTRICT OF COLUMBIA

Washington, population 322,212, has three medical colleges; George Washington University Department of Medicine, Georgetown University School of Medicine and Howard University Medical Department.

Washington

GEORGE WASHINGTON UNIVERSITY, DEPARTMENT OF MEDICINE, 1325 H Street, N.-W.—Organized in 1825 as the National Medical College, Medical Department of Columbian College. Classes were graduated in 1826 and in all subsequent years, except 1834 to 1838, and 1861 to 1863, inclusive. The original title was changed to Medical Department of Columbian University in 1873. In 1904, by an act of Congress, it received its present title. The faculty is composed of 35 professors and 46 instructors, demonstrators and assistants, a total of 81. The course covers four years of eight months each. The total fees are $150 per year. The Dean is Dr. William C. Borden. The total registration for 1909-10 was 115; graduates, 26. The 89th session begins Sept. 28, 1910, and ends June 7, 1911.

GEORGETOWN UNIVERSITY, SCHOOL OF MEDICINE, 920 H Street, N.-W.—Organized in 1851. The first class graduated in 1852. The faculty contains 20 professors, 54 instructors and assistants; total 74. The course of study covers four terms of eight and one-half months each. The fees are $150 each year. The Dean is Dr. George M. Kober, 1600 T Street. The registration for 1909-10 was 117; graduates, 14. The sixtieth session begins Sept. 26, 1910, and ends June 11, 1911.

HOWARD UNIVERSITY, MEDICAL DEPARTMENT, Fifth and W Streets, N.-W.—Chartered in 1867. Organized in 1869. The first class graduated in 1871. Colored students compose a majority of those in attendance. The faculty comprises 23 professors and 23 lecturers and assistants, 46 in all. The course covers four years of thirty weeks each. The fees of each session are $100, plus $7 for graduation. The Dean is Dr. Edward A. Balloch. Registration for 1909-10 was 210; graduates, 30. The forty-third session begins Oct. 1, 1910, and ends May 25, 1911.

GEORGIA

Georgia, population 2,557,412, has five medical colleges; Medical College of Georgia, located in Augusta, population 44,967; Atlanta College of Physicians and Surgeons, Atlanta School of Medicine, the Georgia College of Eclectic Medicine and Surgery, and the Hospital Medical College are in Atlanta, a city of 111,825 population.

Atlanta

ATLANTA COLLEGE OF PHYSICIANS AND SURGEONS, Butler and Armstrong Streets.—Organized in 1898 by union of the Atlanta Medical College, organized in 1855, and Southern Medical College, organized in 1878. The first class graduated in 1899. It has a faculty of 24 professors and 31 assistants, a total of 55. The course of study covers four years of seven months each. Fees: $100 each year. The Dean is Dr. W. S. Elkin, 29 Luckie Street. Total registration of students for 1909-10 334; graduates, 63. The thirteenth session begins Sept. 21, 1910, and ends May 2, 1911.

ATLANTA SCHOOL OF MEDICINE, Luckie, Barton and Cain Streets.—Organized in September, 1905. The first class graduated in 1906. The course covers four years of seven months each. It has a faculty of 13 professors and 27 lecturers and assistants, a total of 40. The fees for each of the first two years are $70; for each of the last two, $80. The Proctor is Dr. Edward G. Jones. The total registration for 1909-10 was 227; graduates, 42. The sixth session begins Sept. 20, 1910, and ends April 20, 1911.

GEORGIA COLLEGE OF ECLECTIC MEDICINE AND SURGERY, Tanner Street, near Edgewood Avenue.—Organized in 1877 as the Georgia Eclectic Medical College. In 1884 it acquired the charter of the College of American Medicine and Surgery. It assumed its present name in 1886. The first class graduated in 1878. The faculty consists of 14 professors and 6 assistants, a total of 20. Tuition is $80 per year; graduation fee, $25. The Proctor is Dr. E. B. Thomas. Total registration for 1909-10 was 90; graduates, 35. The next session begins Sept. 21, 1910, and ends April 21, 1911.

HOSPITAL MEDICAL COLLEGE, Eclectic, Capitol Avenue and Richardson Street.—Organized in 1908. The faculty consists of 16 professors, and 8 lecturers and assistants, a total of 24. The tuition fees are $80 each year; graduation fee, $30. The Dean is Dr. Wiliam Bernard Lingo. Total registration for 1909-10 was 43; graduates, 15. The next session begins Sept. 15, 1910, and ends April 1, 1911.

Augusta

MEDICAL COLLEGE OF GEORGIA, Sixth and Telfair Streets.—Organized in 1828 as the Medical Academy of Georgia, the name being changed to the Medical College of Georgia in 1829. Since 1873 it has been known as the Medical Department of the University of Georgia. Classes were graduated in 1833 and in all subsequent years, except 1862 and 1863. The faculty includes 17 professors and 17 assistants, 34 in all. The course is four years of seven months each. Fees for each of the four years are $100. The Dean is Dr. W. H. Doughty, Jr., The total registration for 1909-10 was 113; graduates, 13. The seventy-ninth session begins Oct. 1, 1910, and ends May 1, 1911.

ILLINOIS

Illinois, population 5,717,229, has eleven medical colleges, two of which are night schools, all located in Chicago, a city of 2,224,491 inhabitants, and are as follows: Rush Medical College, Northwestern University Medical School, College of Physicians and Surgeons, Hahnemann Medical College, Bennett Medical College, Hering Medical College, Jenner Medical College, American Medical Missionary College, College of Medicine and Surgery, Chicago College of Medicine and Surgery and Reliance Medical College.

Chicago

RUSH MEDICAL COLLEGE.—This school was founded in 1837, organized in 1843, was the medical department of Lake Forest University from 1887 until 1898, when it became affiliated with the University of Chicago. The first class graduated in 1844. The faculty is composed of 88 professors, 181 associates, instructors, etc., a total of 269. The requirements for admission are a four-year high school education and, in addition thereto, two years of college work, including courses in college chemistry, physics and biology, and a reading knowledge of German or French. The course covers four years of eight and a half months each. An optional fifth year, consisting of a hospital interneship or of a fellowship in

one of the departments is offered. All freshmen and sophomore studies are given at the University of Chicago. The last two years are given in the clinical building at the corner of Wood and Harrison Streets. The total fees are $180 each year. A matriculation fee of $5 is paid but once, and there are incidentals amounting to from $2 to $5 annually. The Dean is Dr. John M. Dodson, 34 Washington Street. Total registration 1909-10 was 468; graduates, 85. The sixty-eighth session begins Oct. 1, 1910, and ends June 17, 1911.

NORTHWESTERN UNIVERSITY MEDICAL SCHOOL, Dearborn Street, between Twenty-fourth and Twenty-fifth Streets.—Organized in 1859 as the Medical Department of Lind University. In 1864 it became independent as the Chicago Medical College. It united with Northwestern University in 1869, but retained the name of Chicago Medical College until 1891, when the present name was taken. The faculty comprises 53 professors and 110 lecturers and assistants, a total of 163. The requirements for admission are such as will admit to the College of Liberal Arts of Northwestern University plus one year of college work including courses in physics, chemistry, biology and modern languages. The course covers four years of thirty weeks each. The fees for the first year are $190; second year, $200; third year, $191.50, and fourth year, $185. The Secretary is Dr. Charles Louis Mix. The total registration for 1909-10 was 637; graduates, 142. The fifty-first session begins Oct. 4, 1910, and ends May 29, 1911.

COLLEGE OF PHYSICIANS AND SURGEONS, Honore and Congress Streets.—Organized in 1882. The first class graduated in 1883. It became the Medical Department of the University of Illinois in 1896. The faculty is composed of 47 professors, 103 assistants and instructors, a total of 150. The fees are $155 each for the first two years, $150 for the third, and $175 for the fourth year. The Dean is Dr. William E. Quine, 103 State Street. Total registration for 1909-10 was 526; graduates, 131. The twenty-ninth session begins Sept. 27, 1910, and ends June 7, 1911.

AMERICAN MEDICAL MISSIONARY COLLEGE, 888 Thirty-fifth Place. —Organized in 1895. The first class graduated in 1899. Part of the work is given at Battle Creek, Michigan. The faculty numbers 22 professors and 10 assistants, a total of 32. The course covers four years of nine months each. Total fees for the four years, respectively, are $182, $182, $175, $175. The Registrar is Dr. Benton N. Colver, Battle Creek, Mich. Total registration for 1909-10 was 67; graduates, 9. The sixteenth session opens Sept. 13, 1910, and closes June 9, 1911.

CHICAGO COLLEGE OF MEDICINE AND SURGERY, 337 South Lincoln Street.—Organized in 1901 as the American College of Medicine and Surgery (Chicago Eclectic Medical College). The latter part of the name was dropped in 1902 when it became the Medical Department of Valparaiso University. Eclecticism was dropped in 1905. The name was changed to the above in 1907. The course covers four years of eight months each. The faculty consists of 39 professors and 34 lecturers and assistants, a total of 73. The total fees for each of the four years, respectively, are $120, $110, $100 and $100. The Registrar is Dr. G. E. Wyneken. The total registration for 1909-10 was 580; graduates, 89. The tenth session begins Sept. 27, 1910, and ends May 15, 1911.

HAHNEMANN MEDICAL COLLEGE AND HOSPITAL OF CHICAGO, 2811 Cottage Grove Avenue.—Organized in 1859. The first class was graduated in 1861. The faculty includes 38 professors and 46 lecturers, assistants, etc., a total of 84. The course extends over four years of eight months each. The tuition fees are $100 each year. The Registrar is Dr. W. Henry Wilson. The total registration for 1909-10 was 131; graduates, 31. The fifty-first session begins Sept. 27, 1910, and ends May 25, 1911.

HERING MEDICAL COLLEGE, Homeopathic, Wood and York Streets. —Organized in 1892. The first class graduated in 1893. The faculty consists of 29 professors and 23 assistants, instructors, etc., a total of 52. The tuition fees are $100 per year. The Dean is Dr. Robert N. Morris. The total registration for 1909-10 was 42; graduates, 12. The next session begins Sept. 27, 1910, and ends June 1, 1911.

BENNETT MEDICAL COLLEGE, MEDICAL DEPARTMENT OF LOYOLA UNIVERSITY, Fulton and Ada Streets.—Organized in 1868 as the Bennett College of Eclectic Medicine and Surgery. Dropped Eclecticism in 1909. In 1910 the Illinois Medical College merged with it and it became the Medical Department of Loyola University. The first class graduated in 1870. The faculty numbers 57. The course covers four years of thirty weeks each. Fees for each year are $125, with a matriculation fee, paid once, of $5. The President is Dr. John D. Robertson. The total registration for the two colleges in 1909-10 was 231; graduates, 37. The next session begins Sept. 20, 1910, and ends May 31, 1911.

COLLEGE OF MEDICINE AND SURGERY, Physiomedical, 721-725 South Wood Street.—Organized in 1885 as the Chicago Physiomedical Institute. The first class graduated in 1886. In 1891 the name was changed to the Chicago Physiomedical College. In 1899 it took its present name. The faculty numbers 61. The school year has three divisions of 16 weeks each. Attendance on any two will constitute a year's work. Fees for the four years, respectively, are $120, $115, $115 and $140. The Secretary is Dr. William F. Schaare. The total registration for 1909-10 was 57; graduates, 16. The next session begins Sept. 21, 1910, and ends May 12, 1911.

JENNER MEDICAL COLLEGE, a night school located at 196 East Washington Street.—Organized in 1892. Classes were graduated in 1896 and in all subsequent years. The faculty numbers 50. Registrar, Dr. John D. MacKellar. Total registration for 1909-10 was 205; graduates, 23. The next session begins Aug. 29, 1910, and ends June 30, 1911.

RELIANCE MEDICAL COLLEGE. A night school, located at Washington Boulevard and Halsted Street.—Organized in 1907. The faculty numbers 65. The total fees are $130 for each of the first two years and $125 for each of the last two. Registration for 1909-10 was 80; graduates, 7. The President is Dr. J. F. Burkholder. The next session begins Sept. 1, 1910, and ends June 27, 1911.

INDIANA

Indiana, population 2,808,115, has one medical college, the Indiana University School of Medicine, located at Indianapolis, a city of 241,826 people, except that the work of the first two years is offered also at Bloomington, population 5,000, the seat of the University.

Bloomington and Indianapolis

INDIANA UNIVERSITY SCHOOL OF MEDICINE.—Organized in 1893, but did not give all of the work of the first two years of the medical course until 1905. In 1907, by union with the State College of Physicians and Surgeons, the complete course in medicine was offered. In 1908 the Indiana Medical College, which was formed in 1907 by the merger of the Medical College of Indiana (organized in 1869) and the Fort Wayne College of Medicine (organized in 1879) merged into it. The faculty consists of 100 professors and 89 lecturers, associates and assistants, a total of 189. Two years of collegiate work are required for admission. The work of the first two years may be taken either at Bloomington or at Indianapolis. The clinical work is all done at Indianapolis. A fifth optional year leading to the "M.D. *cum laude*" has been added. The Secretary at Bloomington is Dr. B. D. Myers; at Indianapolis, Dr. Edmund D. Clark, Newton-Claypool Bldg. The total registration for 1909-10 was 248; graduates, 59. The next session begins Sept. 22, 1910, and ends June 16, 1911.

IOWA

Iowa, population 2,192,608, has three medical colleges. The College of Medicine of the State University of Iowa and the College of Homeopathic Medicine of the State University of Iowa are located in Iowa City, population 8,197. In Des Moines, population 86,415, is the College of Medicine of Drake University.

Des Moines

DRAKE UNIVERSITY COLLEGE OF MEDICINE.—First two years given on the University Campus, University Avenue, between Twenty-fifth and Twenty-eighth Streets, the clinical years at Fourth and Center Streets. Organized in 1882 as the Iowa College of Physicians and Surgeons. The first class graduated in 1883. In 1887 it became affiliated with and in 1900 became the Medical Department of Drake University. The faculty consists of 20 professors and 30 assistants, lecturers, etc., a total of 50. Two years of collegiate work, including courses in physics, chemistry and histology, are required for admission. The work covers four years of nine months each. The total fees are $150 each year. The Dean is Dr. William Wilson Pearson. The total registration for 1909-10 was 108; graduates, 23. The twenty-eighth session begins Sept. 19, 1910, and ends June 14, 1911.

Iowa City

STATE UNIVERSITY OF IOWA COLLEGE OF MEDICINE. University Campus.—Organized in 1869. First session began in 1870. First class graduated in 1871. The faculty is made up of 15 professors, 25 lecturers, demonstrators and assistants, a total of 40. Two years of collegiate work, including courses in physics, chemistry and biology, are required for admission. The course of study covers four years of thirty-six weeks each. Total fees for each year are $50 plus a matriculation fee of $10 paid but once and a graduation fee of $10. The Dean is Dr. James R. Guthrie, Dubuque. Total number of students registered for 1909-10 was 190; graduates, 44. The forty-first session begins Sept. 19, 1910, and ends June 14, 1911.

STATE UNIVERSITY OF IOWA COLLEGE OF HOMEOPATHIC MEDICINE. —Organized in 1877. The first class graduated in 1878. The faculty is composed of 11 professors and 19 lecturers and assistants, a total of 30. The work of the first two years is taken in classes with the students of the College of Medicine of the State University of Iowa, and it has the same entrance requirements. The fees are $50 each year, plus a matriculation fee of $10, paid but once and a graduation fee of $10. The Dean is Dr. George Royal. Total registration for 1909-10 was 35; graduates, 7. The thirty-third session begins Sept. 19, 1910, and ends June 14, 1911.

KANSAS

Population 1,703,002, has two medical colleges. Kansas Medical College is in Topeka, population 44,757. The School of Medicine of the University of Kansas gives its first two years in Lawrence, population 12,915, and the last two years in Rosedale, a suburb of the two Kansas Cities, which together have a population of 277,427.

Lawrence and Kansas City

UNIVERSITY OF KANSAS SCHOOL OF MEDICINE.—Organized in 1880. In 1905 it merged with the Kansas City (Mo.) Medical College, founded in 1869, the College of Physicians and Surgeons, founded in 1894, and the Medico-Chirurgical College, founded in 1897. The faculty, including lecturers and clinical assistants, numbers 87. The requirements for admission are two years of collegiate work. The course covers four years of about nine months each. The total fees are, for the first two years, $60 per year (and for non-residents of the state, $70); for the last two years, $100 and $110, respectively. The Dean at Lawrence is Dr. Mervin T. Sudler. The Dean at Kansas City is Dr. George Howard Hoxie. The total registration for 1909-10 was 89; graduates, 20. The thirty-first session begins Sept. 19, 1910, and ends June 7, 1911.

Topeka

KANSAS MEDICAL COLLEGE, 521 Quincy Street.—Organized in 1890. The first class graduated in 1892. It has been the Medical Department of Washburn College since 1903. It has a faculty of 26 professors and 18 lecturers and assistants, a total of 44. The course covers four years of nine months each. Fees, $75 yearly. Matriculation fee of $5 paid but once. The Dean is Dr. William E. McVey. Total registration for 1909-10 was 67; graduates, 12. The twenty-first session begins Sept. 14, 1910, and ends June 7, 1911.

KENTUCKY

Kentucky, population 2,406,859, has three medical colleges. They are all situated in Louisville, a city of 236,688 inhabitants, and are as follows: University of Louisville Medical Department, Southwestern Homeopathic Medical College and Louisville National Medical College.

Louisville

UNIVERSITY OF LOUISVILLE MEDICAL DEPARTMENT, Eighth and Chestnut Streets.—Organized in 1837 as the Louisville Medical Institute. The first class graduated in 1838, and a class graduated in each subsequent year except 1863. In 1846 the present name was assumed. In 1907 it absorbed the Kentucky University Medical Department. In 1908 it absorbed the Louisville Medical College, the Hospital College of Medicine and the Kentucky School of Medicine. It has a faculty of 42 professors and 50 lecturers and assistants, a total of 92. The course covers four years of thirty weeks each. The fees are $105 each year; graduation fee, $25. The Dean is Dr. T. C. Evans. The total registration for 1909-10 was 624; graduates, 202. The next session begins Oct. 10, 1910, and ends May 19, 1911.

SOUTHWESTERN HOMEOPATHIC MEDICAL COLLEGE AND HOSPITAL, Floyd and Walnut Streets.—Organized in 1892. The first class graduated in 1894. It has a faculty of 12 professors and 15 lecturers and assistants, 27 in all. The curriculum covers four years of seven months each. Total fees: First three years $80 each and $100 for the fourth. The Dean is Dr. George S. Coon. Total number of students for 1909-10 was 13; graduates, 2. The eighteenth session begins Oct. 6, 1910, and ends May 25, 1911.

LOUISVILLE NATIONAL MEDICAL COLLEGE. Colored. 112 West Green Street.—Organized in 1888. The first class graduated in 1889. The faculty numbers 23. The course covers four years of seven months each. The fees are $60, $55, $55 and $75 for the four years, respectively. The Dean is Dr. E. S. Porter. Total registration for 1909-10 was 31; graduates, 8. The next session begins Oct. 1, 1910, and ends May 18, 1911.

LOUISIANA

Louisiana, having a population of 1,618,358, contains two medical colleges: Medical Department of the Tulane University of Louisiana and Flint Medical College of New Orleans University. They are both situated in New Orleans, a city of 327,662 people.

New Orleans

MEDICAL DEPARTMENT OF THE TULANE UNIVERSITY OF LOUISIANA. University Campus and 1551 Canal Street.—Organized in 1834 as the Medical College of Louisiana. Classes were graduated in 1835 and in all subsequent years, except 1863-65, inclusive. It was transferred to Medical Department of the University of Louisiana in 1847 and became the Medical Department of the Tulane University in 1884. The faculty numbers 73. The course covers four years of thirty-two weeks each. One year of collegiate work is required for admission. Total fees are $160 per year. The Dean is Dr. Isadore Dyer. The total registration for 1909-10 was 417; graduates, 103. The seventy-seventh session begins Oct. 1, 1910, and ends June 1, 1911.

FLINT MEDICAL COLLEGE OF NEW ORLEANS UNIVERSITY. Colored. 1566 Canal Street.—Organized in 1889 as the Medical College of New Orleans University. A class was graduated in 1892 and in each subsequent year, except 1896. Took the above name in 1901. The faculty numbers 15. The course covers four years of thirty weeks each. Total fees for each of the four years, respectively, are $60, $56, $50 and $50. The Dean is Dr. R. T. Fuller. Total registration for 1909-10 was 19; graduates, 4. The twenty-first session begins Sept. 29, 1910, and ends May 9, 1911.

MAINE

Maine, population 724,508, has one medical college, located in Brunswick and Portland, the latter having a population of 57,675.

Brunswick-Portland

MEDICAL SCHOOL OF MAINE. The medical department of Bowdoin College. The first two years are given at Bowdoin College, Brunswick, the last two at Portland, building located on Chadwick Street.—Organized in 1820. The first class graduated in 1820. The faculty numbers 37. The course covers four years of eight months each. The total fees are $120 for the first year and $110 for each of the other three years. The Dean is Dr. Alfred Mitchell, Brunswick. Total number of students in 1909-10 was 74; graduates, 20. The ninetieth session begins Oct. 13, 1910, and ends June 21, 1911.

MARYLAND

Maryland, with a population of 1,319,132, contains six medical colleges, all located in Baltimore, a city with 576,023 inhabitants. They are as follows: Johns Hopkins University Medical Department, School of Medicine of the University of Maryland, College of Physicians and Surgeons, Baltimore Medical College, Atlantic Medical College and Maryland Medical College.

Baltimore

JOHNS HOPKINS UNIVERSITY, MEDICAL DEPARTMENT, Washington and Monument Streets.—Organized in 1893. The first class graduated in 1897. The faculty consists of 23 professors and 89 clinical professors, etc., a total of 112. The requirements for admission demand that the applicant either has (a) completed the chemical-biologic course which leads to the A.B. degree in the university or (b) graduated at an approved college or scientific school and has a knowledge of French and German, physics, chemistry and biology, such as may be obtained from a year's course. The course extends over four years of eight and one-half months each. The charge for tuition is $200 per annum. The Dean is Dr. William H. Howell, 232 West Lanvale Street. Total registration for 1909-10 was 334; graduates, 72. The eighteenth session begins Oct. 5, 1910, and ends June 14, 1911.

COLLEGE OF PHYSICIANS AND SURGEONS. Calvert and Saratoga Streets.—Organized in 1872. The first class graduated in 1873. In 1878 it united with Washington University School of Medicine. The faculty numbers 58. The work covers four years of eight months each. Total fees are $155 for each of the first three years and $185 for the fourth year. The Dean is Dr. Charles F. Bevan. The total number of students registered in 1909-10 was 283; graduates, 66. The thirty-ninth session begins Oct. 1, 1910, and ends June 1, 1911.

UNIVERSITY OF MARYLAND SCHOOL OF MEDICINE, Lombard and Greene Streets.—Organized in 1807 as the College of Medicine of Maryland. The first class graduated in 1810. In 1812 it became the University of Maryland School of Medicine. The faculty numbers 62. The course covers four years of eight months each. The total fees are $155 each year; graduation fee, $30. The Dean is Dr. R. Dorsey Coale. The total number of students registered in 1909-10 was 309; graduates, 85. The 104th session begins Oct. 1, 1910, and ends June 1, 1911.

BALTIMORE MEDICAL COLLEGE, Madison Street and Linden Avenue.—Organized in 1881. The first class graduated in 1882. The faculty numbers 71. The course covers four years of eight months each. Total fees for the first three years are $125 per year; for the fourth year, $155. The Dean is Dr. David Streett. The total number of students registered in 1909-10 was 270; graduates, 54. The twenty-ninth session begins Sept. 20, 1910, and ends May 27, 1911.

MARYLAND MEDICAL COLLEGE, 1114 West Baltimore Street.—Organized in 1898. The first class graduated in 1899. The faculty numbers 38. The course covers four years of eight months each. Total fees for the four years, respectively, are $111, $111, $105 and $135. The Dean is Dr. W. S. Smith. The total registration for 1909-10 was 112; graduates, 36. The next session begins Oct. 1, 1910, and ends June 1, 1911.

ATLANTIC MEDICAL COLLEGE, Mount Street, north of Riggs Avenue.—Organized in 1891 as the Southern Homeopathic Medical College. In 1907 it assumed the above name and became "nonsectarian." The Dean is Dr. Eldridge C. Price. The total registration for 1909-10 was 19, of which number 14 graduated. Among these graduates are several who are reported as having failed miserably in other medical colleges.

MASSACHUSETTS

Massachusetts, population 3,162,347, has four medical colleges: Medical School for Harvard University, Boston University School of Medicine, College of Physicians and Surgeons and Tufts College Medical School. They are all situated in Boston, a city of 622,970.

Boston

MEDICAL SCHOOL OF HARVARD UNIVERSITY, Longwood Avenue.—Organized in 1782. The first class graduated in 1788. It has a faculty of 35 professors and 136 associates, assistants, etc., a total of 171. Candidates for admission "must present a degree in arts, literature, philosophy or science from a recognized college or scientific school, with the exception of such persons as may be admitted by special vote of the faculty." The session is four years of eight months each. Fees: Matriculation, $5; tuition, $200 each year. The Dean is Dr. Henry A. Christian. The total registration for 1909-10 was 279; graduates, 66. The 129th session begins Sept. 29, 1910, and ends June 1, 1911.

BOSTON UNIVERSITY SCHOOL OF MEDICINE, 80 East Concord Street.—Organized in 1873. In 1874 the New England Female Medical College, founded in 1848, was merged into it. The first class graduated in 1874. The faculty includes 27 professors, 39 associates, etc., a total of 66. The course covers four years of eight months each. Total fees for the first, second and third years, $127 each, and for the last year, $155. The Dean is Dr. John P. Sutherland, 302 Beacon Street. Total registration for 1909-10 was 79; graduates, 14. The thirty-eighth session begins Oct. 6, 1910, and ends June 7, 1911.

TUFTS COLLEGE MEDICAL SCHOOL, 416 Huntington Avenue.—Organized in 1893 as the Medical Department of Tufts College. The first class graduated in 1894. It has a faculty of 33 professors and 70 assistants, lecturers, etc., a total of 103. The course covers four years of eight months each. The total fees are $155 each year. The Secretary is Dr. Frederic M. Briggs, 31 Massachusetts

Avenue. Total number of students for 1909-10 was 428; graduates, 52. The seventeenth session begins Sept. 28, 1910, and ends June 1, 1911.

COLLEGE OF PHYSICIANS AND SURGEONS, 517 Shawmut Avenue.—Organized in 1880. The first class graduated in 1882. The course covers four years of nine months each. The college announcement gives the names of 226 "matriculants and applicants" for the session of 1908-9, which included both dental and medical students. From other reliable information it seems that only about 80 medical students actually attended throughout the session of 1909-10. There were 28 graduates reported. The faculty numbers 56. The Dean is Dr. Thomas D. Crothers. The next session begins Sept. 21, 1910, and ends June 14, 1911.

MICHIGAN

Michigan, population 2,666,308, has four medical colleges. Two of these, the University of Michigan Department of Medicine and Surgery and the Homeopathic College of the University of Michigan, are located at Ann Arbor, a city of 14,711 people. Detroit, a city of 384,855 inhabitants, contains two medical colleges, the Detroit College of Medicine and the Detroit Homeopathic College.

Ann Arbor

UNIVERSITY OF MICHIGAN DEPARTMENT OF MEDICINE AND SURGERY.—Organized in 1850. The first class graduated in 1851. It has a faculty composed of 18 professors, 56 associates, instructors, etc., a total of 74. The entrance requirements are two years of college work, including courses in chemistry, physics and biology, with laboratory work, and a reading knowledge of one modern language. The curriculum embraces four years of nine months each. The total fees for Michigan students for the entire course of four years is $350 and for others about $400. The Dean is Dr. Victor C. Vaughan. The total registration for 1909-10 was 315; graduates, 64. The sixty-first session begins Oct. 4, 1910, and ends June 29, 1911.

UNIVERSITY OF MICHIGAN HOMEOPATHIC COLLEGE.—Organized in 1875. The first class graduated in 1877. Although the work of the first two years is taken in the same classes with the Department of Medicine and Surgery of the University of Michigan, nevertheless the entrance requirements are still kept at only a high-school education—a difference of two years of collegiate work! The Dean is Dr. W. B. Hinsdale. The total registration for 1909-10 was 74; graduates, 11. The next session begins Oct. 4, 1910, and ends June 29, 1911.

Detroit

DETROIT COLLEGE OF MEDICINE, St. Antoine, Catherine and Mullett Streets and Gratiot Avenue.—Organized in 1885 by consolidation of Detroit Medical College, organized in 1868, and the Michigan College of Medicine, organized in 1880. The first class graduated in 1886. The faculty embraces 25 professors, 88 lecturers, instructors, etc., a total of 113. The course covers four years of eight months each. The Registrar is Dr. F. B. Walker. The total registration for 1909-10 was 152; graduates, 38. The twenty-sixth session begins Sept. 21, 1910, and ends May 25, 1911.

DETROIT HOMEOPATHIC COLLEGE, Lafayette Avenue and Third Street.—Organized in 1899. A class was graduated in 1900 and in each subsequent year. It has a faculty of 36. The course embraces four years of eight months each. Fees: From $75 to $95 per year. The Registrar is Dr. Fred E. Thompson. The total registration for 1909-10 was 26; graduates, 5. The twelfth session begins Sept. 14, 1910, and ends May 19, 1911.

MINNESOTA

Minnesota, population 2,162,726, contains one medical college, the College of Medicine and Surgery of the University of Minnesota, situated in Minneapolis. Minneapolis and St. Paul are practically one city, and have a combined population of 477,640.

Minneapolis

UNIVERSITY OF MINNESOTA COLLEGE OF MEDICINE AND SURGERY.—Organized in 1883; reorganized in 1888 by absorption of St. Paul Medical College and Minnesota Hospital Medical College. The first class graduated in 1889. In 1908 the Minneapolis College of Physicians and Surgeons, organized in 1883, was merged. In 1909 the Homeopathic College of Medicine and Surgery was merged and provision made for elective chairs in didactic materia medica and therapeutics. Students electing these courses on graduation will receive the degree of Doctor of Medicine in Homeopathy. The faculty includes 61 professors and clinical professors and 67 associate professors, assistants, etc., a total of 128. The curriculum covers four years of nine months each. The entrance requirements are two years of university work which must include one year each of physics, general chemistry, qualitative analysis, zoology or botany, and German or French, all in addition to a four-year high school course, including Latin. Total fees for the first year are $150, for each of the other years $100; microscope rental, $1 to $4 per annum. The Dean is Dr. F. F. Wesbrook. The total registration for 1909-10 was 176, including 16 Hamline University students; the graduates of 1910 numbered 34, including 3 which were granted degrees by Hamline University. The twenty-third session begins Sept. 13, 1910, and ends June 8, 1911.

MISSISSIPPI

Mississippi, population 1,786,773, has two medical colleges, the Medical Department of the University of Mississippi giving only the first two years of the medical course, is located at Oxford, a city of 1,825 inhabitants. The Mississippi Medical College is located at Meridian, population 21,937.

Meridian

MISSISSIPPI MEDICAL COLLEGE, Fifth Street and Twenty-fourth Avenue.—Organized in 1906. The first class graduated in 1907. The faculty numbers 25. The course covers four years of seven months each. The Secretary is Dr. W. W. Hamilton. The total registration for 1909-10 was 96; graduates, 18. The fifth session begins Oct. 3, 1910, and ends April 30, 1911.

Oxford

UNIVERSITY OF MISSISSIPPI MEDICAL DEPARTMENT.—Organized in 1903. Gave only the first two years of the medical course until 1909, when a clinical department was organized at Vicksburg. Graduated one class in 1910, when the clinical years of the course were discontinued. The course covers four years of eight and a half months each. The work of the first two years is given at Oxford. The faculty numbers 30. The Dean is Dr. W. S. Leathers. The total registration for 1909-10 was 49; graduates, 4. The eighth session begins Sept. 23, 1910, and ends June 1, 1911.

MISSOURI

Missouri, population 3,491,397, has ten medical colleges. St. Louis, population 686,369, contains five of these, viz., St. Louis College of Physicians and Surgeons, American Medical College, the School of Medicine of St. Louis University, Washington University Medical Department and Barnes Medical College. Kansas City, which with Kansas City, Kan., has a total population of 277,427, has three colleges, namely: University Medical College, the Kansas City Hahnemann Medical College and the Eclectic Medical University. Ensworth Medical College is located in St. Joseph, population 125,504. The Department of Medicine of the University of Missouri is at Columbia, a town of 5,651 people.

Columbia

UNIVERSITY OF MISSOURI SCHOOL OF MEDICINE.—Organized at St. Louis in 1845; was discontinued in 1859, but was reorganized at Columbia in 1872. Teaching of the clinical years was suspended in 1909. The faculty includes 10 professors, 8 assistant professors, lecturers, etc., a total of 18. The course covers two years of nine months each. The entrance requirements are two years of college work, including English, 5 hours; German, 5 hours; general zoology, 5 hours; physics, 5 hours; inorganic chemistry, 5 hours; Elective, 35 hours. Equivalent work in foreign language may be substituted for the English and German. Total fees are $70 each year. The Dean is Dr. C. M. Jackson. Total registration of students for 1909-10 was 29. The next session begins Sept. 22, 1910, and ends June 8, 1911.

Kansas City

UNIVERSITY MEDICAL COLLEGE OF KANSAS CITY, 911 East Tenth Street.—Organized in 1881 as the University of Kansas City Medical Department. The first class graduated in 1882. It was reorganized in 1888 under the present title. Its faculty comprises 47 professors and 19 lecturers and assistants, a total of 66. The course of study covers four years of thirty weeks each. The total fees for each year are $100; graduation fee, $25. The Dean is Dr. J. M. Frankenburger. The total registration for 1909-10 was 186; graduates, 48. The twenty-ninth session begins Sept. 6, 1910, and ends May 15, 1911.

KANSAS CITY HAHNEMANN MEDICAL COLLEGE, 1020 East Tenth Street.—Organized in 1888 as the Kansas City Homeopathic Medical College. The first class graduated in 1899. In 1902 it united with the Hahnemann Medical College of the Kansas City University, taking the present title. The Dean is Dr. William E. Cramer. Total registration for 1909-10 was 58; graduates, 21. The next session begins Sept. 7, 1910, and ends May 6, 1911.

ECLECTIC MEDICAL UNIVERSITY, 1423 Independence Avenue.—Organized at Kansas City, Mo., in 1898 with the present title. Moved to Kansas City, Kan., in 1907, and took the name of Western Eclectic College of Medicine and Surgery. Returned to Kansas City, Mo., in 1909 and resumed the present title. First class graduated in 1900. The faculty numbers 32. Fees for the four years, respectively, are $90, $95, $100 and $115. Course covers four years of about eight months each. The Secretary is Dr. M. D. L. Isley. The total registration for 1909-10 was 21; graduates, 9. The thirteenth sessions begins Sept. 6, 1910, and ends April 30, 1911.

St. Joseph

THE ENSWORTH MEDICAL COLLEGE, Seventh and Jule Streets.—Organized in 1876 as the St. Joseph Hospital Medical College. In 1882 it merged with the College of Physicians and Surgeons to form the St. Joseph Medical College. In 1888 changed name to Ensworth Medical College. In 1905 merged with the Central Medical College, organized in 1894, to form the Ensworth-Central Medical College. In 1907 the present title was resumed. The faculty numbers 34. The course covers four years of thirty weeks each. The fees for the four years, respectively, are $90, $95, $75 and $95. The Secretary is Dr. T. E. Potter. Total registration for 1909-10 was 68; graduates, 17. The next session begins Sept. 14, 1910, and ends May 1, 1911.

St. Louis

WASHINGTON UNIVERSITY MEDICAL SCHOOL, 1806 Locust Street.—Organized in 1842 as the Medical Department of St. Louis University. In 1855 it was chartered as an independent institution under the name of St. Louis Medical College. The first class graduated in 1843. In 1891 it became the Washington University

Medical School. In 1899 it absorbed the Missouri Medical College. The faculty comprises 48 professors, 51 lecturers and instructors, a total of 99. The course is four years of eight months each. The total fees for the four years are, respectively, $137.50, $132.25, $117.25 and $101.25. The Dean is Dr. George Dock. The total registration for 1909-10 was 205; graduates, 56. The next session begins Sept. 20, 1910, and ends June 8, 1911.

ST. LOUIS UNIVERSITY SCHOOL OF MEDICINE, Grand Avenue and Caroline Street.—Organized in 1901 by union of Marion-Sims Medical College, organized in 1890, and Beaumont Hospital Medical College, organized in 1886. It became the Medical Department of St. Louis University in 1903. The faculty is composed of 37 professors, 75 lecturers and assistants, a total of 112. The curriculum covers four years of eight months each. The total fees are $110 each year. The Dean is Dr. E. P. Lyon. The total registration for 1909-10 was 261; graduates, 66. The next session begins Oct. 1, 1910, and ends May 29, 1911.

ST. LOUIS COLLEGE OF PHYSICIANS AND SURGEONS, Jefferson Avenue and Gamble Street.—Organized in 1869. Classes graduated in 1870 and in each subsequent year until 1873, when it suspended. It was reorganized in 1879. Classes graduated in 1880 and subsequent years. It has a faculty of 25 professors, 24 lecturers, instructors, etc., a total of 49. The course covers four years of seven months each. Total fees for each of the four years, respectively, are $105, $100, $100 and $105. The Dean is Dr. Waldo Briggs, 2600 Gamble Street. Total registration for 1908-9 was 228; there were 42 graduates in 1910. The next session begins Sept. 15, 1910, and ends May 6, 1911.

BARNES MEDICAL COLLEGE, Garrison and Lawton Avenues.—Organized in 1892. Classes graduated in 1893 and in all subsequent years except 1899. The faculty consists of 40 professors and 8 lecturers and assistants, a total of 48. The course covers four years of eight months each. The total fees are $100 each year. The Dean is Dr. A. R. Kieffer. Total registration for 1909-10 was 184; graduates, 51. The next session begins Sept. 14, 1910, and ends May 13, 1911.

AMERICAN MEDICAL COLLEGE, 407 South Jefferson Avenue.—Organized in 1873 as an Eclectic College. Eclecticism dropped in 1910. Two classes were graduated each year from 1874 to 1883, inclusive. Since then one class has graduated each year. The course covers four years of nine months each. The fees are $100 each year. The Dean is Dr. James Moores Ball. The total registration for 1909-10 was 39; graduates, 7. The next session begins Sept. 5, 1910, and ends June 1, 1911.

NEBRASKA

Nebraska, population 1,069,579, has three medical colleges: The University of Nebraska College of Medicine and the John A. Creighton Medical College at Omaha, population 134,972, and the Lincoln Medical College at Lincoln, population 52,308.

Lincoln and Omaha

COLLEGE OF MEDICINE, UNIVERSITY OF NEBRASKA, Eleventh and R Streets, Lincoln, and Twelfth and Pacific Streets, Omaha.—Organized in 1881 as the Omaha Medical College. The first class graduated in 1882. It became the Medical Department of Omaha University in 1891. In 1902 it affiliated with the University of Nebraska, with the present title. Two years of collegiate work are required for admission. The first two years are given at Lincoln; the last two at Omaha. The faculty is composed of 28 professors and 40 lecturers and instructors, total 68. The fees are approximately $100 per annum. Total registration for 1909-10 was 76; graduates, 16. The next session at Lincoln begins Sept. 20, 1910, and ends June 7, 1911. For the advanced classes at Omaha the next session begins Sept. 13, 1910, and ends May 27, 1911.

Lincoln

LINCOLN MEDICAL COLLEGE. Eclectic. Corner 13th and P Streets. It is the Medical Department of Cotner University.—Organized in 1890. The first class graduated in 1891. The faculty numbers 37. The course of study covers four years of thirty-two weeks each. The total fees are $90 each year. The Secretary is Dr. R. H. Spradling, 1315 O Street. The total registration for 1909-10 was 58; graduates, 13. The twenty-first session begins Sept. 7, 1910, and ends May 20, 1911.

Omaha

JOHN A. CREIGHTON MEDICAL COLLEGE, Fourteenth and Davenport Streets. It is the Medical Department of Creighton University.—Organized in 1892. The first class graduated in 1895. It has a faculty of 31 professors and 18 associates, lecturers and assistants, a total of 49. The course of study embraces four years of eight months each. The total fees for the four years, respectively, are $105, $100, $100 and $105. The Dean is Dr. D. C. Bryant, McCague Building. Total number of students registered in 1909-10 was 194; graduates, 44. The nineteenth session begins Sept. 5, 1910, and ends April 29, 1911.

NEW HAMPSHIRE

New Hampshire, population 443,140, has one medical college, located at Hanover, population 1,884.

Hanover

DARTMOUTH MEDICAL SCHOOL.—Organized as New Hampshire Medical Institute in 1797. The first class graduated in 1798. It is the Medical Department of Dartmouth College. The faculty is made up of 17 professors and 6 instructors, a total of 23. Two years of collegiate work are required for admission. The course covers four years of eight months each. The fees are $125 each year. The Dean is Dr. William T. Smith. The total registration for 1909-10 was 57; graduates, 10. The work of the first and second years begins with that of the academic department Sept. 22, 1910, and ends June 24, 1911; for the advanced classes the course begins Aug. 2, 1910, and ends March 28, 1911.

NEW YORK

New York State, population 8,706,039, has eleven medical colleges. Eight of these, College of Physicians and Surgeons (Columbia University), Long Island College Hospital, New York Homeopathic Medical College and Hospital, New York Medical College and Hospital for Women, Eclectic Medical College of the City of New York, Cornell University Medical College, the University and Bellevue Hospital Medical College, and Fordham University School of Medicine, are located in New York City, population 4,450,963. Albany Medical College is located in Albany, a city of 100,730 people. The University of Buffalo Medical Department is situated in Buffalo, population of 396,535. The College of Medicine, Syracuse University, is in Syracuse, a city of 125,378 inhabitants.

Albany

ALBANY MEDICAL COLLEGE, Lancaster and Jay Streets.—Organized in 1838. The first class graduated in 1839. It became the Medical Department of Union University in 1873. The faculty is composed of 15 professors and 78 lecturers, assistants, etc., a total of 93. The curriculum covers four years of eight months each. Fees: First year, $130; second year, $145; third year, $120, and fourth year, $130. The Registrar is Dr. Willis G. Tucker. The total registration for 1909-10 was 196; graduates, 41. The eightieth session begins Sept. 20, 1910, and ends May 16, 1911.

Buffalo

UNIVERSITY OF BUFFALO MEDICAL DEPARTMENT, High Street, near Main.—Organized in 1846. The first class graduated in 1847. It absorbed the Medical Department of Niagara University in 1898. The faculty is composed of 37 professors and 58 lecturers, assistants, etc., a total of 95. The course covers four years of eight months each. The total fees for the four years, respectively, are $185, $180, $140 and $140. The Dean is Dr. Matthew D. Mann, 37 Allen Street. Total registration for 1909-10 was 191; graduates, 37. The sixty-fifth session begins Sept. 26, 1910, and ends June 1, 1911.

New York

COLUMBIA UNIVERSITY COLLEGE OF PHYSICIANS AND SURGEONS, 437 West Fifty-ninth Street.—Organized in 1807 by the regents of the University of the State of New York as their medical department. The first class graduated in 1811. Affiliated with Columbia College in 1814 and was permanently connected in 1860, when it became the Medical Department of Columbia College. That institution became Columbia University in 1891. The faculty is composed of 55 professors and 121 instructors, demonstrators, etc., a total of 176. Two years of collegiate work, including courses in physics, chemistry and biology are required for admission. The work covers four years of eight months each. The Dean is Dr. Samuel W. Lambert. The total fees for the first year are $255; for the second and third, $250, and $275 for the fourth year. Total registration for 1909-10 was 360; graduates, 69. The 103d session begins Sept. 28, 1910, and ends June 7, 1911.

CORNELL UNIVERSITY MEDICAL COLLEGE, Ithaca, and First Avenue and Twenty-eighth Street, New York.—Organized in 1898. The first class was graduated in 1899. The work of the first year may be taken either in Ithaca or New York. The faculty is composed of 53 professors and 86 assistants, lecturers, instructors, etc., a total of 139. All candidates for admission must be graduates of approved colleges or scientific schools and in addition must have such knowledge of physics, inorganic chemistry and biology as may be obtained in college by a year's course in these subjects when accompanied by laboratory work. Fees: First year, $190; second and third, $185 each, and $200 for the fourth year. The Dean is Dr. William M. Polk. Total registration for 1909-10 was 164; graduates, 68. The thirteenth session begins Sept. 28, 1910, and ends June 14, 1911.

ECLECTIC MEDICAL COLLEGE OF THE CITY OF NEW YORK, 239 East Fourteenth Street.—Organized in 1865. The first class graduated in 1867. The Dean is Dr. George W. Boskowitz. Total registration for 1909-10 was 91; graduates, 13.

FORDHAM UNIVERSITY SCHOOL OF MEDICINE, Third and Pelham Avenues.—Organized in 1905. First class graduated in 1909. The faculty consists of 47 professors and 31 lecturers and assistants, a total of 78. The course of instruction covers four years of nine months each. Fees, $200 each year. A year's work in a recognized college of liberal arts is required for admission. The Dean is Dr. James J. Walsh. The total registration for 1909-10 was 75; graduates, 6. The sixth session begins Sept. 21, 1910, and ends June 15, 1911.

LONG ISLAND COLLEGE HOSPITAL, Henry Street, near Atlantic Avenue, Brooklyn.—Organized in 1858. The first class graduated in 1860. It has a faculty of 9 professors and 86 assistants, instructors, etc., a total of 95. The course covers four years of eight months each. Fees: First and second years, $205 each; third, $160, and $195 for the fourth year. The Secretary is Dr. Joseph H. Raymond. Total registration, 1909-10, was 368; graduates, 72. The fifty-third session begins Oct. 1, 1910, and ends June 1, 1911.

NEW YORK HOMEOPATHIC MEDICAL COLLEGE AND HOSPITAL, Eastern Boulevard, between Sixty-third and Sixty-fourth Streets.—Organized in 1858. Incorporated in 1860 as the Homeopathic Medical College for the State of New York. The present title was assumed in 1869. The first class graduated in 1861. The Dean is Dr. Royal S. Copeland. Total registration for 1909-10 was 125; graduates, 24.

NEW YORK MEDICAL COLLEGE AND HOSPITAL FOR WOMEN, 17-19 West One Hundred and First Street.—Organized in 1863. The first class graduated in 1864. The Dean is Dr. Helen Cooley Palmer. The total registration for 1909-10 was 24; graduates, 4.

UNIVERSITY AND BELLEVUE HOSPITAL MEDICAL COLLEGE, First Avenue and Twenty-sixth Street.—Organized in 1898 by the union of the New York University Medical College, organized in 1841, and the Bellevue Hospital Medical College, organized in 1861. It is the Medical Department of New York University. The faculty is composed of 36 professors and 130 instructors, etc., in all 166. The course covers four years of eight months each. The fees are $200 per year. The Dean is Dr. Egbert Le Fevre. Total registration for 1909-10 was 474; graduates, 64. The next session begins Sept. 28, 1910, and ends June 1, 1911.

Syracuse

SYRACUSE UNIVERSITY COLLEGE OF MEDICINE, 307-311 Orange Street.—Organized in 1872 as the College of Physicians and Surgeons of Syracuse University. The present title was assumed in 1875. In 1872 Geneva Medical College was merged with it. The first class was graduated in 1873. The faculty is composed of 15 professors and 45 assistant professors, lecturers and instructors, in all 60. The course covers four years of eight months each. The completion of two years in an accredited college of liberal arts is required for admission. The total fees for each of the four years, respectively, are $181, $191, $151 and $166. The Dean is Dr. John L. Heffron. The total registration for 1909-10 was 140; graduates, 27. The thirty-ninth session begins Oct. 4, 1910, and ends June 14, 1911.

NORTH CAROLINA

North Carolina, population 2,142,084, has four medical schools, one of which gives only the first two years of the medical course. The Medical Department of the University of North Carolina is located at Chapel Hill, population 1,099. The Leonard School of Medicine is at Raleigh, population 14,512. The North Carolina College is at Charlotte, population 35,101. Wake Forest School of Medicine is at Wake Forest, population 823.

Chapel Hill

UNIVERSITY OF NORTH CAROLINA MEDICAL DEPARTMENT.—Organized in 1890. Until 1902 this school gave only the work of the first two years, when the course was extended to four years by the establishment of a department at Raleigh. The first class graduated in 1903. A class was graduated each subsequent year, including 1910, when the clinical department at Raleigh was discontinued. The faculty is composed of 22 professors and 25 lecturers, assistants, etc., a total of 47. The total fees for the two years, respectively, are $114 and $116. The Dean is Dr. G. H. Manning. The total registration for 1909-10 was 74; graduates, 14. The twenty-fifth session begins Sept. 5, 1910, and ends May 30, 1911.

Charlotte

NORTH CAROLINA MEDICAL COLLEGE, Church and Sixth Streets.—Organized in 1887 at Davidson as the Davidson School of Medicine. It was a preparatory school only, not granting any degrees until 1893, when it was chartered under its present name. The first class was graduated in 1893. Removed to Charlotte in 1907. The faculty numbers 27. The course covers four years of eight months each. Fees: First three years, $85 each, and $100 for the fourth year. The Dean is Dr. Walter O. Nisbet. The total registration for 1909-10 was 107; graduates, 14. The next session begins Sept. 14, 1910, and ends May 1, 1911.

Raleigh

LEONARD MEDICAL SCHOOL.—Colored. This department of Shaw University was established in 1882. Classes were graduated in 1886, 1888 and in all subsequent years. It has a faculty of 12. The course covers four years of seven months each. The total fees for each year are $15; graduation fee, $10. The Dean is Dr. William Moncure. Total registration for 1909-10 was 133; graduates, 23. The twenty-ninth session begins Sept. 29, and ends May 11, 1911.

Wake Forest

WAKE FOREST COLLEGE SCHOOL OF MEDICINE.—This school was organized in 1902. The faculty numbers 10. It only gives the first two years of the medical course, which constitute a part of the course for the B.S. degree. Each annual course extends over nine months. The fees are $100 each year. The Dean is Dr. John Brewer Powers. The total registration for 1909-10 was 37. The ninth session begins Sept. 6, 1910, and ends May 20, 1911.

NORTH DAKOTA

North Dakota, population 536,103, has one medical college, the College of Medicine of the State University of North Dakota, which is situated at University near Grand Forks, a city of 14,000 people.

University

UNIVERSITY OF NORTH DAKOTA COLLEGE OF MEDICINE.—Organized in 1905. The faculty is composed of 9 professors and 7 instructors, a total of 16. The course consists of two years' academic work and two years of medical college subjects, occupying nine months each year. The total fees for each of the medical years are $50. The Dean is M. A. Brannon, A.M. The total registration for 1909-10 was 36. The sixth session begins Sept. 20, 1910, and ends June 15, 1911.

OHIO

Ohio, population 4,594,240, has six medical colleges. Two of these, the Ohio-Miami Medical College of the University of Cincinnati and the Eclectic Medical College, are located in Cincinnati, a city of 351,212 inhabitants. Cleveland, population 506,938, contains two medical schools: Western Reserve Medical College and the Cleveland-Pulte Medical College. Columbus, population 155,340, contains one medical college, the Starling-Ohio Medical College. Toldeo, with 174,059 people, has one medical school, the Toledo Medical College.

Cincinnati

THE OHIO-MIAMI MEDICAL COLLEGE OF THE UNIVERSITY OF CINCINNATI.—Organized in 1909 by the union of the Ohio Medical College (founded in 1819) with the Miami Medical College (founded in 1852). The Ohio Medical College became the Medical Department of the University of Cincinnati, April 26, 1896. Under a similar agreement, March 2, 1909, Miami Medical College also merged into the University when the present title was taken. The faculty consists of 53 professors, 74 associates, assistants, etc., a total of 127. The course covers four years of eight months each. The fees are a tuition fee of $125 a year; a matriculation fee of $5, payable but once, and a graduation fee of $25. The Secretary is Dr. E. Otis Smith. The total registration for 1909-10 was 191; graduates, 41. The next session begins Sept. 28, 1910, and ends June 3, 1911.

ECLECTIC MEDICAL COLLEGE, 630 West Sixth Street.—Organized in 1832 at Worthington as the Worthington Medical College. Removed to Cincinnati in 1843. In 1845 it was chartered as the Eclectic Medical Institute. In 1857 the American Medical College, organized in 1839, was merged into it, and in 1859 the Eclectic College of Medicine and Surgery, organized in 1856, merged into it. In 1910 it assumed its present title. Classes were graduated in 1833 and in all subsequent years except 1839 to 1843, inclusive. It has a faculty of 19 professors and 6 lecturers and assistants, a total of 25. The course covers four years of thirty weeks each. The fees are $90 for each year. The Dean is Dr. Rolla L. Thomas, 792 East McMillan Street. Total registration for 1909-10 was 91; graduates, 20. The next session begins Sept. 20, 1910, and ends May 4, 1911.

Cleveland

CLEVELAND-PULTE MEDICAL COLLEGE, Prospect Avenue and Huron Road.—Homeopathic.—Organized in 1849 as the Western College of Homeopathic Medicine. The first class graduated in 1853. In 1857 it became the Western Homeopathic College and in 1870 it became the Homeopathic Hospital College when the Homeopathic Medical College for Women, organized in 1868, merged into it. In 1894 it became the Cleveland University of Medicine and Surgery. In 1898 it merged with the Cleveland Medical College, organized in 1890, and assumed the title of Cleveland Homeopathic Medical College. In 1910 Pulte Medical College of Cincinnati merged into it and the present title was assumed. The Registrar is Dr. Joseph A. Lytle. Total number of students registered in the two schools in 1909-10 was 67; graduates, 10. The next session begins Sept. 21, 1910, and ends May 11, 1911.

WESTERN RESERVE UNIVERSITY, MEDICAL DEPARTMENT, St. Clair Avenue and East Ninth Street.—Organized in 1843 as the Cleveland Medical College. The first class graduated in 1845. It assumed the present title in 1881. In 1910 it absorbed the Cleveland College of Physicians and Surgeons. The faculty includes 41 professors and 45 lecturers, assistants, etc., a total of 96. The curriculum embraces four years of eight and one-half months each. Three years of college work are required for admission to first year of medical course. The total fees are $125 for each year. The Dean is Dr. B. L. Millikin, 1110 Euclid Avenue. The total registration for 1909-10 for the two combined schools was 192; graduates, 42. The sixty-eighth session begins Oct. 1, 1910, and ends June 15, 1911.

Columbus

STARLING-OHIO MEDICAL COLLEGE, Buttles Avenue and Park Street.—Organized in 1907 by the union of Starling Medical College (organized 1834) with the Ohio Medical University (organized 1890). The faculty consists of 35 professors and 22 lecturers, demonstrators, etc., a total of 57. The course covers four years of eight months each. Matriculation, $5; tuition, $125 each year. The Dean is Dr. W. J. Means. The total registration for 1909-10 was 220; graduates, 41. The next session begins Sept. 21, 1910, and ends May 24, 1911.

Toledo

TOLEDO MEDICAL COLLEGE, Cherry and Page Streets.—Organized in 1883. The first class graduated in 1883. The faculty numbers 50. The curriculum embraces four years of eight months each. The fees are $100 for each year, with a matriculation fee of $5, payable once. The Secretary is Dr. E. I. McKesson. The total registration for 1909-10 was 45; graduates, 9. The next session begins Oct. 3, 1910, and ends May 26, 1911.

OKLAHOMA

Oklahoma, population 1,592,401, has one medical college, the School of Medicine of the State University of Oklahoma. The work of the first and second years is given in the academic laboratories at Norman, a city of 4,000 inhabitants. The work of the third and fourth years is given in Oklahoma City, which has a population of 45,380 and which is eighteen miles north of Norman.

Norman and Oklahoma City

STATE UNIVERSITY OF OKLAHOMA SCHOOL OF MEDICINE.—Organized in 1900. Gave only the first two years of the medical course until 1910, when it absorbed the Epworth College of Medicine and established a clinical department at Oklahoma City. It has a faculty of 27 professors and 13 instructors, a total of 40. The course is four years of nine months each. An optional course of six years is offered for the degrees of B.S., and M.D. The total fees for the four years, respectively, are $30, $10, $100 and $105. The Secretary is Dr. J. D. MacLaren, Box 382, Norman. The total registration for the combined schools for 1909-10 was 72; graduates, 7. The eleventh session begins Sept. 14, 1910, and ends June 8, 1911.

OREGON

Oregon, population 505,339, has two medical colleges: The Medical Department of Willamette University, located at Salem, a city of 14,000 people, and the University of Oregon Medical Department, in Portland, a city of 119,607 population.

Portland

UNIVERSITY OF OREGON, MEDICAL DEPARTMENT, Lovejoy and Twenty-third Streets.—Organized in 1887. The first class graduated in 1888. It has a faculty of 15 professors and 35 lecturers, assistants, etc., a total of 50. The course is four years of thirty weeks each. Fees: First year, $142.50; second, $137.50; third, $10 .50, and for the fourth, $57.50. The Dean is Dr. Simeon E. Jo ephi. The total registration for 1909-10 was 80; graduates, 15. The twenty-fourth session begins Sept. 12, 1910, and ends May 1, 191 .

Salem

MEDICAL DEPARTMENT WILLAMETTE UNIVERSITY.—Organized in 1865 at Salem. Classes were graduated in 1867 and in all subsequent years except 1896. It moved to Portland in 1878, but returned to Salem in 1895. The faculty numbers 20. The course is four years of eight months each. The fees for the four years, respectively, are $122.50, $110, $87.50 and $57.50. The Dean is Dr. W. H. Byrd. The total registration for 1909-10 was 35; graduates, 4. The next session begins Oct. 1, 1910, and ends June 1, 1911.

PENNSYLVANIA

Pennsylvania, population 7,241,716, has seven medical colleges. Of these Philadelphia, having a population of 1,515,756, contains six, as follows: University of Pennsylvania, Department of Medicine, Jefferson Medical College, Hahnemann Medical College, Woman's Medical College of Pennsylvania, Medico-Chirurgical College of Philadelphia and Temple University Department of Medicine. The other school, the Medical Department of the University of Pittsburg, is situated in Pittsburg, a city of 558,123 people.

Philadelphia

UNIVERSITY OF PENNSYLVANIA, DEPARTMENT OF MEDICINE, Thirty-sixth Street and Hamilton Walk.—Organized in 1765. Classes were graduated in 1768 and in all subsequent years except 1772-79, inclusive. The original title was the Department of Medicine, College of Philadelphia, which was changed to the present title in 1791. It granted the first medical diploma issued in America. The faculty is made up of 26 professors, 18 associate adjunct and assistant professors and 120 demonstrators, lecturers, associates, instructors, etc., a total of 164. The requirements for admission are the equivalent of work prescribed for the first two years in recognized colleges, which work must include a knowledge of physics, chemistry and general biology or zoology with laboratory work as specified by the College Entrance Examining Board and, in addition, two foreign languages, one of which must be French or German. The course embraces study of four years of nine months each. The total fees for each of the four years, respectively, are $218, $213, $210 and $211.50. The Dean is Dr. Allen J. Smith. Total registration for 1909-10 was 529; graduates, 134. The next session begins Sept. 23, 1910, and ends June 21, 1911.

JEFFERSON MEDICAL COLLEGE, Tenth and Walnut Streets.—Organized in 1825 as the Medical Department of Jefferson College, Cannonsburg. The first class graduated in 1826. The present title was assumed in 1838. It has a faculty of 25 professors and 115 lecturers, demonstrators, etc., a total of 140. The course of study covers graded work of four years of eight months each. An optional fifth year is offered. The tuition is $180 a year, with a matriculation fee of $5, paid but once. The Dean is Dr. James W. Holland. The total registration for 1909-10 was 531; graduates, 141. The eighty-sixth session beings Sept. 26, 1910, and ends June 5, 1911.

MEDICO-CHIRURGICAL COLLEGE OF PHILADELPHIA, Cherry Street, between Seventeenth and Eighteenth Streets.—Organized in 1881. The first class graduated in 1882. The faculty is composed of 33 professors and 76 lecturers, assistants, etc., a total of 109. The work embraces four years of eight months each. An optional preliminary year devoted to physics, chemistry and biology is offered. Fees, $150 per year; matriculation, $5, payable once. The Dean is Dr. Seneca Egbert. The total registration for the college year 1909-10 was 455; graduates, 69. The thirtieth session begins Sept. 26, 1910, and ends June 3, 1911.

WOMAN'S MEDICAL COLLEGE OF PENNSYLVANIA. Twenty-first and N. College Avenue.—Organized in 1850. Classes were graduated in 1851 and in all subsequent years except 1861 and 1862. It has a faculty of 10 professors and 50 assistants, lecturers, etc., in all 60. The curriculum covers four years of eight months each. Fees, about $145 each year. The Dean is Dr. Clara Marshall. The total registration for 1909-10 was 114; graduates, 31. The 61st session begins Sept. 21, 1910, and ends May 31, 1911.

HAHNEMANN MEDICAL COLLEGE AND HOSPITAL.—Organized in 1848 as the Homeopathic Medical College of Pennsylvania. In 1869 it united with the Hahnemann Medical College of Philadelphia, taking the present title. The first class graduated in 1849. It has a faculty of 28 professors and 52 lecturers, instructors, etc., in all 80. The work covers four years of eight months each. Fees: For each year, $150; matriculation, $5. The Dean is Dr. William B. Van Lennep. The total registration for the college year 1909-10 was 159; graduates, 37. The 63d session begins Sept. 26, 1910, and ends June 1, 1911.

THE TEMPLE UNIVERSITY, DEPARTMENT OF MEDICINE. Eighteenth and Buttonwood Streets.—Organized in 1901. The first class graduated in 1904. The faculty numbers 84. It gives a four-year day course. The fees are $150 per year. The Dean is Dr. Frank C. Hammond. The total registration for 1909-10 was 197; graduates, 36. The 10th session begins Sept. 15, 1910, and ends June 3, 1911.

Pittsburg

UNIVERSITY OF PITTSBURG, MEDICAL DEPARTMENT. Brereton Avenue and Thirtieth Street.—Organized in 1886 as the Western Pennsylvania Medical College. Became the Medical Department of the University of Pittsburg in 1909. The first class graduated in 1887. The faculty is composed of 43 professors and 60 associates, assistants, etc., 103 in all. The course of study embraces four years of nine months each. The total fees are $210 each year. The Dean is Dr. Thomas S. Arbuthnot. The total registration for 1909-10 was 309; graduates, 60. The 27th session begins Oct. 5, 1910, and ends June 15, 1911.

PHILIPPINE ISLANDS

The Philippine Archipelago, having a population of 7,635,436, has two medical colleges, the University of St. Thomas, Medical Department, and the Philippine Medical School. Both are located in the City of Manila, which in 1903 had a population of 219,928.

Manila

UNIVERSITY OF ST. THOMAS, MEDICAL DEPARTMENT.—The University was founded by a papal decree in 1587, and the medical school was added in 1771. The faculty numbers 154. The course extends over a period of six years of nine months each. The first year is a preparatory one, devoted to the teaching of physics, chemistry and biology. The degree of licenciado is conferred at the conclusion of the fifth year, and the degree of doctorado at the end of the sixth year, during which only special work is done. This last year is optional, the degree of licenciado entitling the holder to all the rights and privileges of the medical practitioner. The degree is equivalent to the English M.B. The Rector of the university is Dr. Fr. Raimundo Velasquez; the Secretary of the Medical Department is Lic. Blas C. Alcuaz. The total registration for 1908-9 was 379; graduates, 151.

PHILIPPINE MEDICAL SCHOOL.—Organized in 1907 under the support of the Philippine Commission. The faculty numbers 42. The course extends over five years of thirty-five weeks each. The requirements for admission conform to the standards in the United States and Great Britain. The Secretary is Dr. Harry T. Marshall. The total registration for 1908 was 52; graduates, 8. The third session began June 7, 1909, and ended Feb. 26, 1910.

SOUTH CAROLINA

South Carolina, population 1,510,566, has one medical college, situated in Charleston, a city of 56,573 people.

Charleston

THE MEDICAL COLLEGE OF THE STATE OF SOUTH CAROLINA.—Founded in 1823 as the Medical College of South Carolina. In 1832 it was chartered with the present title. Classes were graduated in 1825 and in all subsequent years except 1861 to 1865 inclusive. It has a faculty of 11 professors and 22 lecturers, instructors, etc., a total of 33. The course covers four years of eight months each. The total fees for each of the first two years are $100, and $75 each for the last two. The Dean is Dr. Robert Wilson. Total enrolment for 1909-10 was 229; graduates, 38. The 88th session begins Oct 1, 1910, and ends May 31, 1911.

SOUTH DAKOTA

South Dakota, population 498,077, has one medical college, the University of South Dakota, College of Medicine, located at Vermilion, a city of 2,183 people.

Vermillion

UNIVERSITY OF SOUTH DAKOTA, COLLEGE OF MEDICINE.—Organized in 1907. Offers only the first two years of the medical course. Two years work in a college of liberal arts is required for admission. The faculty numbers 9. The Dean is Christian P. Lommen, B.S. The total registration for 1909-10 was 7. The 4th session begins Sept. 12, 1910, and ends June 8, 1911.

TENNESSEE

Tennessee, population 2,248,404, has eight medical colleges. Of these Vanderbilt University Medical Department, the Medical Department of the Universities of Nashville and Tennessee and Meharry Medical College are situated in Nashville, a city

with a population of 106,476. Knoxville, population 37,758, contains two colleges, Tennessee Medical College and Knoxville Medical College. Memphis Hospital Medical College, the College of Physicians and Surgeons and the University of West Tennessee are located in Memphis, population 136,363.

Knoxville

TENNESSEE MEDICAL COLLEGE, MEDICAL DEPARTMENT OF LINCOLN MEMORIAL UNIVERSITY. Cleveland Street and Dameron Avenue.—Organized in 1889. The first class graduated in 1890. It has a faculty of 20 professors and 7 assistants, a total of 27. The curriculum covers four years of seven months each. Fees: First and second years, $50; third and fourth years, $60; matriculation fee, $5; graduation fee, $25. The total registration for 1909-10 was 98; graduates, 20. The 21st session begins Oct. 1, 1910, and ends May 3, 1911.

KNOXVILLE MEDICAL COLLEGE. Colored. Clinton and McGhee Streets. Organized in 1900. Classes were graduated in 1900 and in all subsequent years except 1906 and 1907. The Secretary is Dr. H. M. Green, Famous Building. There were 21 students and 1 graduate for the session of 1909-10.

Memphis

COLLEGE OF PHYSICIANS AND SURGEONS. Opposite City Hospital. Organized in 1906. The first class graduated in 1907. It has a faculty of 42. The course covers four years of seven and a half months each. The Dean is Dr. E. C. Ellett. The total registration for 1909-10 was 105; graduates, 17. The fifth session begins Sept. 15, 1910, and ends May 1, 1911.

MEMPHIS HOSPITAL MEDICAL COLLEGE. Marshall Avenue and Myrtle Street.—Organized in 1880. The first class graduated in 1881. It has a faculty of 12 professors and 26 lecturers, instructors, etc., a total of 38. The course covers four years of thirty weeks each. The total fees for each of the first three years are $100; for the fourth, $125. The Dean is Dr. W. B. Rogers. Total registration for 1909-10 was 425; graduates, 101. The 31st annual session will begin Oct. 1, 1910, and close May 18, 1911.

MEDICAL DEPARTMENT OF THE UNIVERSITY OF WEST TENNESSEE. Colored, 1190 South Phillips Place.—Organized in 1900. The first class graduated in 1904 and a class graduates each subsequent year. It has a faculty of 16. The course is four years of seven months each. The fees are $50 per year; graduation $10 extra. The Dean is Dr. M. V. Lynk. Registration for 1909-10 was 35; graduates, 6. The 11th session begins Sept. 14, 1910, and ends April 14, 1911.

Nashville

VANDERBILT UNIVERSITY, MEDICAL DEPARTMENT. Elm Street and Fifth Avenue.—This school was founded in 1874. The first class graduated in 1875. The faculty consists of 23 professors and 24 lecturers, a total of 47. The course covers four years of seven and a half months each. The total fees for each of the first three years are $125, and for the fourth year, $150. The Dean is Dr. William L. Dudley. The total registration for 1909-10 was 271; graduates, 39. The 37th session begins Sept. 15, 1910, and ends May 1, 1911.

UNIVERSITIES OF NASHVILLE AND TENNESSEE, MEDICAL DEPARTMENT.—Organized in 1909 by the union of the University of Nashville, Medical Department (founded in 1850), with the University of Tennessee, Department of Medicine (founded in 1876). The college has a faculty of 51. The course covers four years of thirty-two weeks each. The total fees are $125 for each of the first three years and $150 for the fourth year. The Dean is Dr. R. O. Tucker. The total registration for 1909-10 was 203; graduates, 65. The next session begins Sept. 5, 1910, and ends May 1, 1911.

MEHARRY MEDICAL COLLEGE, Colored. Maple and Chestnut Streets.—This school was organized in 1876 and is the Medical Department of Walden University. The faculty is made up of 12 professors and 14 instructors, demonstrators, etc., 26 in all. The work embraces four years of thirty-two weeks each. The total fees for each of the four years respectively are $56, $59, $57 and $65. The Dean is Dr. G. W. Hubbard. Total registration for 1909-10 was 281; graduates, 56. The 35th session begins Sept. 14, 1910, and ends April 25, 1911.

TEXAS

Texas, population 3,780,574, has four medical colleges. The University of Texas Department of Medicine is located at Galveston, a city of 38,000 inhabitants. The Medical Department of Fort Worth University is at Fort Worth, population 68,132. The Baylor University College of Medicine and the Medical Department of Southwestern University are situated in Dallas, population 104,541.

Dallas

BAYLOR UNIVERSITY COLLEGE OF MEDICINE, 435-37 South Ervay Street.—Organized in 1900 as the University of Dallas, Medical Department. In 1903 it took its present name and became the Medical Department of Baylor University at Waco. It acquired the charter of Dallas Medical College in 1904. The first class graduated in 1901. The faculty numbers 28. The course is four years of seven months each. The fees are $100 each year; matriculation fee of $5, paid but once; graduation fee, $25. The Dean is Dr. E. H. Cary. Total registration for 1909-10 was 67; graduates, 9. The 11th session begins Oct. 3, 1910, and ends May 1, 1911.

SOUTHWESTERN UNIVERSITY MEDICAL COLLEGE.—Organized in 1903. The first class graduated in 1904. It has a faculty of 19 professors and 14 instructors, assistants, etc. The course of instruction covers four years of seven months each. The fees for the four years respectively are $110, $105, $100 and $125. The Dean is Dr. John O. McReynolds. Total registration for 1909-10 was 61; graduates, 17. The 8th session begins Sept. 29, 1910, and ends April 30, 1911.

Fort Worth

MEDICAL DEPARTMENT OF FORT WORTH UNIVERSITY. Calhoun and Fifth Streets.—Organized in 1894. The first class graduated in 1895. It has a faculty of 16 professors and 22 lecturers, assistants, etc., in all 38. The course covers four years of seven months each. The total fees for each of the first three years are $105, and $130 for the fourth year. The Dean is Dr. W. R. Thompson. The total registration for the college year 1909-10 was 81; graduates, 28. The 17th session begins Sept. 27, 1910, and ends May 13, 1911.

Galveston

UNIVERSITY OF TEXAS, DEPARTMENT OF MEDICINE. Avenue B and Ninth Street.—Organized in 1891. The first class graduated in 1892. It has a faculty of 9 professors and 14 lecturers. The curriculum embraces four years of eight months each. The entrance requires one year of collegiate work in addition to a four-year high school education. The total fees for the four years respectively are $55, $30, $20 and $5. The Dean is Dr. William S. Carter. Total registration for 1909-10 was 206; graduates, 35. The 20th session begins Oct. 1, 1910, and ends May 31, 1911.

UTAH

Utah, population 336,122, has one medical college, the Medical Department of the University of Utah, situated at Salt Lake City, which has 64,538 people.

Salt Lake City

UNIVERSITY OF UTAH, DEPARTMENT OF MEDICINE.—Organized in 1906. Gives only the first two years of the medical course. Each course covers thirty-six weeks. Two years of collegiate work are required for admission. The medical faculty consists of 6 professors and 10 lecturers and assistants, a total of 16. The fees are $65 each year. The Acting-dean is Dr. George M. Marshall. Total registration for 1909-10 was 30. The 4th session begins Sept. 19, 1910, and ends June 3, 1911.

VERMONT

Vermont, population 353,739, has one medical school, located at Burlington, a town of 21,880 people.

Burlington

UNIVERSITY OF VERMONT COLLEGE OF MEDICINE. Pearl Street, College Park.—Organized with complete course in 1822. Classes graduated in 1823 to 1836, inclusive, when the school was suspended. It was reorganized in 1853 and classes were graduated in 1854 and in all subsequent years. The faculty numbers 54. The course of study covers four years of seven months each. The total fees for each of the first three years are $135, and $165 for the fourth year. The Secretary is Dr. James N. Jenne. The total registration for 1909-10 was 178; graduates, 30. The next session begins Nov. 14, 1910, and ends June 20, 1911.

VIRGINIA

Virginia, population 2,032,567, has three medical colleges, one, the Medical Department of the University of Virginia, situated in Charlottesville, population 6,449, and two, the Medical College of Virginia and the University College of Medicine, in Richmond, population 109,461.

Charlottesville

UNIVERSITY OF VIRGINIA, DEPARTMENT OF MEDICINE.—Organized in 1827. Classes were graduated in 1828 and in all subsequent years except 1865. It has a faculty of 15 professors and 15 lecturers, instructors, assistants, etc., a total of 30. The requirements for admission are the completion of a four years' high school course, or its equivalent, and a year of college work devoted to chemistry, physics and biology. Fees: First year, $150; second year, $140; third year, $120; fourth year, $100. The Dean is Dr. R. H. Whitehead. The total registration for 1909-10 was 87; graduates, 31. The next session begins Sept. 15, 1910, and ends June 14, 1911.

Richmond

MEDICAL COLLEGE OF VIRGINIA. Marshall and College Streets.—Organized in 1838 as the Medical Department of Hampden Sydney College. Present title was taken in 1854. Classes were graduated in 1840 and in all subsequent years. It has a faculty of 16 professors and 38 lecturers, instructors, etc., a total of 54. The requirement for admission is a full four-year high school education. The course embraces four years of eight months each. Fees, $100 each year; graduation fee, $30. The Dean is Dr. Christopher Tompkins. The total registration for the college year 1909-10 was 191; graduates, 38. The 73d session begins Sept. 13, 1910, and ends May 30, 1911.

UNIVERSITY COLLEGE OF MEDICINE. Eleventh and Clay Streets.—Organized in 1893. The first class graduated in 1894. It has a faculty of 66. Curriculum covers four years of eight months each. The total fees are $100 for each year. The Dean is Dr. A. L. Gray. The total registration for the college year 1909-10 was 137; graduates, 22. The 18th session begins Sept. 14, 1910, and ends May 25, 1911.

WEST VIRGINIA

West Virginia, population 1,135,206, has one medical college, College of Medicine of the West Virginia University, located at Morgantown, a city of 3,900 inhabitants.

Morgantown

WEST VIRGINIA UNIVERSITY COLLEGE OF MEDICINE.—Organized in 1902. Gives only the first two years of the medical course. Each college term extends over nine months. The faculty consists of 8 professors and 5 assistants, 13 in all. Tuition to students residing in the state, $25; for others, $50 per year. The Dean is Dr. J. N. Simpson. The total registration for the college year 1909-10 was 27. The 9th session begins Sept. 15, 1910, and ends June 15, 1911.

WISCONSIN

Wisconsin, population 2,356,874, has three medical colleges, the Medical Department of the University of Wisconsin, which teaches the first two years of the medical course, and is located at Madison, a city having a population of 27,610, and the Milwaukee Medical College and Wisconsin College of Physicians and Surgeons, situated in Milwaukee, a city of 332,495 people.

Madison

UNIVERSITY OF WISCONSIN COLLEGE OF MEDICINE.—Organized in 1907. Gives only the first two years of the medical course. For matriculation a candidate must have had, in addition to a four-year high school course, at least two years in a college of arts and science or an equivalent training. Two years of Latin, a reading knowledge of French and German, and at least a year's work in physics, chemistry and biology are specifically required. It has a faculty of 13 professors and 6 lecturers, instructors, etc., a total of 19. The Dean is Dr. Charles R. Bardeen. The registration for 1909-10 was 48. The 3d session begins Sept. 29, 1910, and ends June 23, 1911.

Milwaukee

MILWAUKEE MEDICAL COLLEGE, MEDICAL DEPARTMENT OF MARQUETTE UNIVERSITY, Ninth and Wells Streets.—Organized in 1894. The first class graduated in 1895. It became the Medical Department of the Marquette University in 1907. It has a faculty of 30 professors and 36 lecturers, instructors, etc., a total of 66. The course covers four years of eight months each. The total fees are $135 each for the first three years and $150 for the fourth year. The Dean is Dr. Warren B. Hill. The total registration for 1909-10 was 293; graduates 47. The 17th session begins Oct. 4, 1910, and ends May 22, 1911.

WISCONSIN COLLEGE OF PHYSICIANS AND SURGEONS, Fourth Street and Reservoir Avenue.—Organized in 1893. The first class graduated in 1894. In 1908 it became the medical department of Carroll College. It has a faculty of 30 professors and 26 lecturers, instructors, etc., a total of 56. The curriculum includes four years of eight months each. Fees: Matriculation, paid once, $5; general ticket, $125. The Dean is Dr. Thomas C. Phillips. The total registration for 1909-10 was 51; graduates, 6. The 19th session begins Oct. 3, 1910, and ends May 30, 1911.

CANADA

Manitoba

MANITOBA MEDICAL COLLEGE, Winnipeg.—It is the Medical Faculty of the University of Manitoba. Organized in 1883, first class graduated in 1886 and a class graduated each subsequent year. The faculty numbers 49. The fees are $155 for the first year and $150 for each subsequent year. The entire course covers five years. The Dean is Dr. H. H. Chown, 263 Broadway, Winnipeg. Total registration for 1909-10 was 110; graduates, 3. The next session begins Sept. 26, 1910, and ends May 1, 1911.

Nova Scotia

HALIFAX MEDICAL COLLEGE, Medical Faculty of Dalhousie University, Halifax.—Organized 1867 as Halifax School of Medicine, united same year with Dalhousie University, separately incorporated 1876, affiliated with Dalhousie University 1885, first class graduated 1872 and a class graduated each subsequent year except 1873 and 1886. The Medical Faculty of Dalhousie University is the Examining Board for Nova Scotia and teaches only the premedical branches; Halifax Medical College teaches the medical courses, but the Medical Faculty conducts the examinations and grants the degrees. The course covers four years. The Dean is Dr. George L. Sinclair; the Secretary is Dr. A. W. H. Lindsay. The total registration for 1909-10 was 60; graduates, 9. The next session begins Aug. 25, 1910, and ends April 27, 1911.

Ontario

UNIVERSITY OF TORONTO, FACULTY OF MEDICINE, Toronto.—Organized 1843 as the Medical Faculty of King's College. Abolished in 1853. Re-established in 1887. The course of study covers five years of eight months each. In 1903 it absorbed Trinity Medical College. The Secretary is Dr. A. Primrose. The total registration for 1909-10 was 590; graduates, 125. The next session begins Sept. 27, 1910, and ends May 18, 1911.

MEDICAL FACULTY OF QUEEN'S UNIVERSITY, Kingston.—Organized 1854, first class graduated in 1855, and a class graduated each subsequent year. The faculty was originally a department of the University, but a separation took place in 1866, when the school was conducted under the charter of the Royal College of Physicians and Surgeons at Kingston. In 1892 the school again became an integral part Queen's University. The fees amount to $100 each year; fee for M.D., C.M. degrees, $30. The course covers five years of seven months each. The total registration in 1909-10 was 228; graduates, 30. The Dean is Dr. A. R. B. Williamson. The next session begins Sept. 28, 1910, and ends April 26, 1911.

MEDICAL DEPARTMENT OF WESTERN UNIVERSITY, London.—Organized in 1881, first class graduated in 1883 and a class graduated each year subsequently. The faculty numbers 22. The course is five years of seven and a half months each. The Registrar is Dr. W. E. Waugh. Total registraion for 1909-10 was 116; graduates, 20. The next session begins Sept. 15, 1910, and ends May 1, 1911.

Quebec

MEDICAL FACULTY OF MCGILL UNIVERSITY.—Founded 1824 as Montreal Medical Institution; became the Medical Faculty of McGill University in 1829; first class graduated under the university auspices in 1833. No session between 1836-39 owing to political troubles. In 1905 it absorbed the Faculty of Medicine of the University of Bishop College. The course extends over five years of eight months each. The faculty numbers 101. The total fees for each of the five years respectively are $138, $138, $148, $154 and $184. The total registration for 1909-19 was 329; graduates, 79. The Registrar is Dr. John W. Scane. The next session begins Oct. 3, 1910, and ends May 20, 1911.

LAVAL UNIVERSITY, MEDICAL DEPARTMENT, Quebec and Montreal.—The Quebec School of Medicine, organized in 1848, became in 1852 Medical Department of Laval University; first class graduated in 1855, and a class graduated each subsequent year. Department organized in Montreal in 1878. The course extends over five years. The Deans are Dr. Michael Joseph Ahern, Quebec, and Dr. E. P. Lachapelle, Montreal. Total registration at the two departments, 1909-10 was 311; graduates, 42. The next session at Quebec begins Sept. 15, 1910, and ends June 20, 1911; at Montreal the next session begins Oct. 3, 1910, and ends June 20, 1911.

FOREIGN MEDICAL COLLEGES

ARGENTINE REPUBLIC

Buenos Ayres.—Universidad Nacional de Buenos Aires.
Cordova.—Universidad Nacional.

AUSTRALIA

Adelaide.—Universidad Nacional.
Melbourne.—University of Melbourne.
Sydney.—University of Sydney.

AUSTRIA

Gratz, Styria.—Kaiserliche Königliche Karl Franzens Universität
Innsbruck, Tyrol.—Kais, Königl. Leopold Franzens Universität.
Krakow, Galicia.—Uniwersytet Jagiellonski w Krakowie.
Lemberg, Galicia.—C. K. Uniwersytet Imienia Cesarza Franciska I.
Prague, Bohemia.—K. K. Deutsche Karl-Ferdinand-Universität.
Prague, Bohemia.—C. K. Ceská Universita Karlo-Ferdinandova.
Vienna, Nether Austria.—Kaiserliche Königliche Universität.

BELGIUM

Brussels.—Université Libre de Bruxelles.
Ghent.—Université d l'Etat de Gand.
Liege.—Université de Liège.
Louvain.—Université Catholique.

BOLIVIA

La Paz.—Universidad de La Paz.
Sucre.—Universidad de Sucre.

BRAZIL

Bahia.—Faculdade de Medicina, Cirurgia e Pharmacia.
Rio de Janeiro.—Faculdade de Medicina, Cirurgia e Pharmacia.
Porto Allegre.—Faculdade Livre de Medicina e Pharmacia.

CANADA

Halifax, Nova Scotia.—Dalhousie University (including Halifax Medical College).
Kingston, Ontario.—Queen's University.
London, Ontario.—Western University.
Montreal, Quebec.—McGill University.
Montreal, Quebec.—Université Laval.
Quebec, Quebec.—Université Laval.
Toronto, Ontario.—University of Toronto.
Winnipeg, Manitoba.—University of Manitoba (Manitoba Medical College).

CHILE

Santiago.—Universidad de Chile.

CHINA

Hongkong.—Hongkong College of Medicine.
Nanking.—East China Union Medical College.
Pekin.—The Union Medical College.
Shanghai.—Woman's Medical School.

COLOMBIA

Bogota.—Universidad de Bogota.

CUBA

Havana.—Universidad de la Habana.

DENMARK

Copenhagen.—Kjobenhavns Universitet.

EGYPT

Cairo.—Kasr il Aini (School of Medicine).

ENGLAND

Birmingham.—University of Birmingham.
Bristol.—University of Bristol.
Cambridge.—University of Cambridge.
Durham.—Durham University (Durham College of Medicine).
Leeds.—University of Leeds.
Liverpool.—University of Liverpool.
London.—University of London (including the following Medical Schools: (*a*) St. Bartholomew's Hospital, (*b*) Charing Cross Hospital, (*c*) St. George's Hospital, (*d*) Guy's Hospital, (*e*) King's College, (*f*) London Hospital (*g*) St. Mary's Hospital, (*h*) Middlesex Hospital, (*i*) St. Thomas's Hospital, (*j*) University College (*k*) Westminster Hospital, and (*l*) London (Royal Free Hospital) School of Medicine for Women.

Manchester.—Victoria University (Owen's College, founded in 1851, was merged in Victoria University in 1903)
Oxford.—University of Oxford.
Sheffield.—University of Sheffield.

FRANCE

Faculties of Medicine (to the degree of doctor in medicine, including the five required examinations).
Bordeaux.—Université de Bordeaux.
Lille.—Université de Lille.
Lyons.—Université de Lyon.
Montpellier.—Université de Montpellier.
Nancy.—Université de Nancy.
Paris.—Université de Paris.
Toulouse.—Université de Toulouse.
Preparatory Schools of Medicine.—Graduates of the 16 following schools are allowed to take the first two examinations if they are presided over by some member of a medical faculty:
(a) "Full Exercise," or complete course (covering the work of 16 trimesters).
Algiers (Africa).—Académie d'Alger.
Marseilles.—Université d'Aix-Marseille.
Nantes.—Ecole de Plein Exercice de Médecine et de Pharmacie (part of the University of Rennes).
Rennes.—Université de Rennes.
(b) Reorganized Schools.—(Completing the first 12 trimesters.)
Amiens.—Ecole Préparatoire de Médicine et de Pharmacie (part of the University of Lille).
Amiens.—Ecole Préparatoire de Médecine et de Pharmacie (part of the University of Rennes).
Besancon.—Université de Besancon.
Caen.—Université de Caen.
Clermont.—Université de Clermont.
Dijon.—Université de Dijon.
Grenoble.—Université de Grenoble.
Limoges.—Ecole de Médecine et de Pharmacie (part of the University of Poitiers).
Poitiers.—Université de Poitiers.
Reims.—Ecole Préparatoire de Médecine et de Pharmacie (part of the University of Paris).
Rouen.—Ecole de Médecine et de Pharmacie (part of the University of Caen).
Tours.—Ecole Prépatoire de Médecine et de Pharmacie (part of the University of Poitiers).

GERMANY

Berlin, Prussia.—Königliche Friedrich-Wilhelm Universität.
Bonn, Prussia.—Rheinische Friedrich-Wilhelms-Universität.
Breslau, Prussia.—Königliche Universität.
Erlangen, Bavaria.—Königl. Friedrich-Alexanders Universität.
Freiberg, Baden.—Grossherzogliche Badische Albert-Ludwigs-Universität.
Giessen, Hesse.—Grossherzogliche Hessische Ludwigs-Universität.
Gottingen, Prussia.—Königliche Georg-August-Universität.
Greifswald, Prussia.—Königliche Universität.
Halle, Prussia.—Vereinigte Friedrichs-Universität Halle-Wittenberg.
Heidelberg, Baden.—Grossherzogliche Ruprecht-Karls-Universität.
Jena, Thuringia.—Grossherzogliche und Herzogliche Sächsische Gesamt-Universität.
Kiel, Prussia.—Königliche Christian-Albrechts-Universität.
Konigsberg, Prussia.—Königliche Albertus-Universität.
Leipzig, Saxony.—Universität.
Marburg, Prussia.—Universität.
Munich, Bavaria.—Königliche Bayr. Ludwig-Maximilians-Universität.
Rostock, Mecklenberg.—Universität.
Strassburg, Alsace-Lorraine.—Kaiser-Wilhelms-Universität.
Tübingen, Wurtemberg.—Königliche Eberhard-Karls-Universität.
Würzburg, Bavaria.—Königliche Julius-Maximilians Universität.

GREECE

Athens.—National University.

GUATEMALA

Guatemala.—Facultad de Medicina.

HAITI

Port au Prince.—L'Ecole Nationale de Medecine.

HONDURAS

Tegucigalpa.—Facultad de Medicina.

HUNGARY

Budapest.—Budapesti Királyl Magyar Tudomány-Egyetem (Royal Hungarian University).
Klausenburg.—Kolozsvári Magyar Királyi Ferencz-Jozsef Tudomány-Egyetem (Royal Hungarian Franz-Joseph University).

ICELAND

Reykjavik.—Loeknaskoli (School of Physicians).

INDIA

Bombay.—University of Bombay (Grant Medical College).
Calcutta.—University of Calcutta (Medical College of Bengal).
Lahore.—Panjab University (Lahore Medical College).
Madras.—University of Madras (Madras Medical College).

IRELAND

Belfast.—Queen's University.
Dublin.—National University of Ireland (including Catholic School of Medicine, Dublin; University College, Cork; University College, Galway).
Dublin.—University of Dublin (The School of Physic in Ireland, Trinity College).
Dublin.—Royal College of Surgeons, Schools of Surgery (including the Carmichael College of Medicine and the Ledwich School of Medicine).

ITALY

Bologna.—Regia Università degli Studi.
Cagliari, Sardinia.—Università degli Studi.
Camerino.—Libera Università degli Studi.
Catania.—Regia Università degli Studi di Catania.
Ferrara.—Libera Università degli Studi di Ferrara.
Florence.—Regia Instituto di Studi Superiori, Practici e di Perfezionamento.
Genoa.—Regia Università degli Studi.
Messina.—Regia Università degli Studi.
Modena.—Regia Università degli Studi.
Naples.—Regia Università degli Studi.
Padua.—Regia Università degli Studi.
Palermo.—Regia Università degli Studi.
Parma.—Regia Università degli Studi.
Pavia.—Regia Università degli Studi.
Perugia.—Università Libra degli Studi.
Pisa.—Regia Università degli Studi.
Rome.—Regia Università degli Studi.
Sassari.—Regia Università degli Studi.
Siena.—Regia Università degli Studi.
Turin.—Regia Università degli Studi.

JAPAN

Kyoto.—Imperial University (part of medical school is located at Fukuoka).
Tamsui, Formosa.—Medical School of Formosa.
Tokyo.—Imperial University (Tokio Medical College became Medical Department in 1877).
Medical schools are located also at Chiba, Sendai, Okayama, Kanazawa and Nagasaki.

MEXICO

Mexico.—Escuela de Medicina.

NETHERLANDS

Amsterdam.—Universiteit van Amsterdam.
Groningen.—Rijks-Universiteit te Groningen.
Leyden.—Rijks-Universiteit.
Utrecht.—Rijks-Universiteit.

NEW ZEALAND

Wellington.—University of New Zealand (affiliated with the University of Cambridge, England).

NORWAY

Christiania.—Kongelige Frederiks Universitet.

PERU

Lima.—Universidad Mayor de San Marcos.

PORTUGAL

Coimbra.—Universidade de Coimbra.
Lisbon.—Escola Medico-Cirurgica.
Oporto.—Escola Medico-Cirurgica.

ROUMANIA

Bukharest.—Universitatea din Bucuresti.
Jassy.—Universitatea din Jasi.

RUSSIA

Helsingfors, Finland.—Kejserliga Alexanders Universitet.
Jurjev (formerly Dorpat).—Imperatorskij Jurjevskij Universitet.
Kazan.—Imperatorskij Kasanskij Universitet.
Kharkof.—Imperatorskij Charkovskij Universitet.
Kief.—Imperatorskij Universitet Sv. Vladimira.
Moscow.—Imperatorskij Moskovskij Universitet.
Odessa.—Imperatorskij Novorossijskij Universitet.
St. Petersburg.—Vojenno-Medicinskaja Akademija (Military Medical Academy).
St. Petersburg.—Zenskij Medicinskij Institut (Medical High School for Women).
Tomsk, Siberia.—Tomskij Universitet.
Warsaw.—Imperatorskij Varsavskij Universitet.

SCOTLAND

Aberdeen.—University of Aberdeen.
Dundee.—University of St. Andrews (University College).
Edinburgh.—University of Edinburgh.
Edinburgh.—School of Medicine of the Royal Colleges (including the Surgeons' Hall School).
Glasgow.—University of Glasgow (including Queen Margaret College).
Glasgow.—Anderson's College Medical School.
Glasgow.—St. Mungo's College and Glasgow Royal Infirmary.
Glasgow.—Western Medical School.

SPAIN

Barcelona.—Universidad de Barcelona.
Cadiz.—Facultad de Medicina.
Granada.—Universidad de Granada.
Madrid.—Universidad de Central de Espana.
Santiago.—Universidad.
Saragossa.—Universidad.
Seville.—Universidad de Sevilla. (To this university also belongs the Medical Faculty at Cadiz.)
Valencia.—Universidad Literaria.
Valladolid.—Universidad.

SWEDEN

Lund.—Kungl. Karolinska Universitetet.
Stockholm.—Karolinska Institutet (Medico-Chirurgical Institute). (This institute has the same chancellor as the universities at Lund and Upsala, and is guided by a similar constitution.)
Upsala.—Kungl. Universitetet i Upsala.

SWITZERLAND

Basel.—Universität.
Berne.—Kantonale Universität.
Fribourg.—Universität.
Geneva.—Université de Genève.
Lausanna.—Université.
Neu-Chatel.—Universität.
Zurich.—Universität.

SYRIA

Beirut.—Syrian Protestant College.
Beirut.—Université Saint Joseph de Beyrouth.

TURKEY

Constantinople.—University of Constantinople.
(Another medical department of this university is located at Damascus).

URUGUAY

Montevideo.—Universidad.

WALES

Cardiff.—University of Wales (Cardiff School of Medicine).

EDUCATIONAL STANDARDS ABROAD

The educational standards in foreign countries regarding which definite information has been obtained are briefly stated as follows:

ARGENTINE REPUBLIC.—Elementary education extends between the ages of 6 and 14, and secondary education between the ages of 12 and 18, thereby overlapping the elementary by two years. Twelve years of study, therefore, lead to the medical course, which covers six years, including preliminary work in physics, chemistry and biology. The complete course requires 18 years and the minimum age at completion of the course is 24.

AUSTRIA.—Elementary education extends between the ages of 6 and 14, overlapping the gymnasium course by four years, the latter extending between the ages of 10 and 18. Twelve years of study, therefore, admit to medicine. The medical course covers six years and includes preliminary courses in physics, chemistry and biology. The total time required is 18 years and the minimum age at completion is 24.

BELGIUM.—Elementary education extends between the ages of 6 and 14, overlapping the work in the Royal Athénées, the secondary schools, by three years, the latter extending between the ages of 11 and 18. The time spent in the primary and secondary schools is, therefore, 12 years. An additional year devoted to physics, chemistry and biology in a college of science admits to the five-year medical course. The time necessary to complete the work is 18 years and the minimum age at completion is 24.

BOLIVIA.—Elementary education extends between the ages of 6 and 14, and secondary education between the ages of 12 and 18, thereby overlapping the elementary by two years. Twelve years of study, therefore, lead to the medical course, which covers six years, including preliminary work in physics, chemistry and biology. The complete course requires 18 years and the minimum age at the completion of the course is 24.

BRAZIL.—Elementary education extends between the ages of 7 and 15, overlapping the work of the gymnasium by three years, the latter extending between the ages of 12 and 19. Elementary work may be begun at the age of 6 years, and in such cases students may finish the gymnasium at 18. Twelve years of work lead to medicine, where six years of work are required, including preliminary courses in physics, chemistry and biology. The time required to complete the entire course is 18 years and the usual age at completion is 25.

CHILL.—Elementary education extends between the ages of 6 and 14 years, leading to the secondary, which extends from the 14th to the 18th year. A six-year medical course follows, which includes preliminary work in physics, chemistry and biology. The time to complete the entire work is 18 years and the minimum age at completion is 24.

COLOMBIA.—Elementary education extends between the ages of 6 and 14, and secondary education between the ages of 12 and 18, thereby overlapping the elementary by two years. Twelve years of study, therefore, lead to the medical course, which covers six years, including preliminary work in physics, chemistry and biology. The complete course requires at least 18 years and the minimum age at the completion of the course is 24.

DENMARK.—Elementary education extends between the ages of 6 and 12, leading to the "laerdeskoler," the secondary schools, which extend between the ages of 12 and 18, a total of 12 years. The medical course covers six years, including preliminary courses in the natural sciences. Time to complete the work is 18 years and the minimum age at completion is 24.

FRANCE.—Elementary education extends between the ages of 6 and 13 or 14. The majority of students entering the secondary schools, however, obtain their elementaary work from tutors or in special preparatory courses connected with the lycées. The secondary school, the lycée, has a nine-year course divided into two cycles of five and four years, respectively, and extends between the ages of 11 and 18. From age 6, therefore, twelve years of training are required to complete the primary and secondary work. An additional year devoted to the natural sciences, which must be taken in a college of science, admits to the four-year medical course. Entire course, therefore, is 17 years, and the age at completion is 23.

GERMANY.—Elementary study extends between the ages of 6 and 14, overlapping the gymnasium by four years, the latter extending between the ages of 10 and 18. Then follows a six-year course, which includes preliminary courses in the natural sciences, and the last year must be spent in hospital work. This gives the right to practice, but additional work is required, and a severe examination, the "examen rigorosum," must be passed to secure the degree of doctor. Eighteen years of work lead to medical practice or 19 to the Doctorate and the age at completion is at least 24 or 25.

GREAT BRITAIN.—There appears to be no connection between elementary and secondary systems of education. Elementary public schools have been provided, extending between the ages of 6 and 12 or 15. Those entering secondary schools usually obtain their elementary instruction from private tutors or in the preparatory courses of the secondary schools. At present there are no public secondary schools in Great Britain, although that country abounds in private secondary schools, having courses varying as to age. Taking Rugby as an example, the course extends from the age of 10 to 17. Others extend from the age of 12 to 19. There are various ages at which the student may enter the medical schools, the minimum age fixed by the General Medical Council being 16. The time spent in elementary and secondary education, therefore, ranges from 10 to 13 years. Work must then be taken in physics, chemistry and biology either in a college of science or in the medical college as a part of the regular five-year medical course. Authorities agree that only a small proportion of students enter the medical school before the 18th year and few graduate in medicine before the age of 23. Since the promotion from one grade to another depends entirely on the passing of an examination, the time to complete the medical course usually requires six or more years.

GREECE.—Elementary education is given in the "demotic" schools between the ages of 6 and 10 and in the "hellenic" schools between the ages of 10 and 14, leading to the secondary schools or gymnasia, which occupy the time between the ages of 14 and 18. Twelve years are occupied, therefore, by elementary and secondary education. Two years of work in the university devoted to botany, chemistry, physics, mineralogy, geology and zoology must be completed in order to begin the four-year medical course for the degree of Doctor. To secure the right to practice, nine months of postgraduate work in a hospital must be completed. The total time requirement is 19 years and the minimum age at completion of the entire course is 25.

HUNGARY.—Elementary education extends between the ages of 6 and 12 years, overlapping secondary education, which extends between the ages of 10 and 18. The 12 years' work thus completed leads to the five-year medical course, which includes preliminary work in physics, chemistry and biology. The time for the entire course is, therefore, 17 years, and the minimum age at completion is 23.

ITALY.—Elementary education is divided into lower elementary, extending between the ages of 6 and 9 years, and higher elementary, extending between 9 and 12 years. Secondary education is given in the ginnasio, extending between the ages of 10 and 15 years, and in the liceo, which extends between the ages of 15 and 18 years. This is followed by a six-year course in medicine, which includes work in the natural sciences. The complete course, therefore, is elementary study 4 years, ginnasio 5 years, liceo 3 years and medicine 6 years, a total of 18 years. The minimum age at completion of the course is 24 years.

JAPAN.—Ordinary elementary education extends between the ages of 6 and 10 years and higher elementary education is between the ages of 10 and 14 years, overlapping the work of the "middle school" by two years, the latter extending between the ages of 12 and 17 years. Completing the work of the middle school admits to the four-year medical course in all medical schools, except those at Tokio, Kioto and Fukuoka, which require also the completion of three years of higher preliminary education.

NETHERLANDS.—Elementary education extends between the ages of 6 and 12 years, leading to the gymnasium, which extends from the 12th to the 18th year. Admission is then secured to the six-year medical course, which includes work in the natural sciences. The time to complete the entire course is 18 years and the minimum age is 24.

NORWAY.—Elementary education extends between the ages of 6 and 12 years, overlapping the secondary, which extends between the ages of 9 and 18 years. Secondary education is divided into a six-year middle school and a three-year gymnasium. The completion of the course of the gymnasium admits to the six-year medical course, which includes work in physics, chemistry and biology. The entire time, therefore, is 18 years and the minimum age at completion is 24. This gives the right to practice with the title of physician. The degree of Doctor requires extra work and the passing of special examinations.

PERU.—Elementary education extends between the ages of 6 and 14, and secondary education between the ages of 12 and 18, thereby overlapping the elementary by two years. Twelve years of study, therefore, lead to the medical course, which covers six years, including preliminary work in physics, chemistry and biology. The complete course requires 18 years and the minimum age at the completion of the course is 24.

PORTUGAL.—Elementary education extends between the ages of 6 and 12 years, thus overlapping the work of the lyceum, which extends between the ages of 9 and 16. This is followed by a course of one or two years in a faculty of philosophy and mathematics and then five years in medicine for the degree of licentiate in medicine and a sixth year for the degree of Doctor. The time for the entire course, therefore, is 18 years and the minimum age at completion is 24.

RUSSIA.—Elementary education extends for 3 years between the ages of 7 and 10. Secondary education, as given in the gymnasium, extends over 8 years between the ages of 11 and 19. Completion of the secondary work admits to the five-year medical course, which includes preliminary work in the natural sciences extending through the first two years along with other subjects. The total time is 16 years and the minimum age at completion is 24.

SPAIN.—Elementary education extends between the ages of 6 and 14 years, overlapping the work of the gymnasium, the secondary schools, which conduct work between the ages of 10 and 17. After completing the work of the gymnasium one year of "preliminary study" must be taken, devoted to chemistry and natural science. Six years more gives the degree of licentiate in medicine and one more that of doctor. The complete course, therefore, requires 18 years of study and the minimum age at completion is 24.

SWEDEN.—Elementary education extends over 7 years between the ages of 6 and 13. Secondary education consists of a five-year lower modern course and a four-year higher gymnasium, the two courses being attended by students between the ages of 9 and 18. After completing the gymnasium one year of preliminary work in the natural sciences must be taken in a college of philosophy. Seven years more of study gives the degree of licentiate in medicine, which carries with it the right to practice. To secure the degree of Doctor requires more work and the passing of special examinations. Promotion to each succeeding grade depends on the passing of an examination, and the medical course often extends to 9 or more years. The entire course, therefore, includes: elementary work, 3 years; lower modern school, 5 years; higher gymnasium, 4 years; college of philosophy, 1 year, and medicine, 7 years, a total of 20 years. The age at completion is 26 to 28 years.

SWITZERLAND.—The Cantons differ somewhat in the length of their secondary courses, but all agree in regard to the preliminary work for admission to medicine and the length of the medical course. Taking the Canton of Zürich as an example, the elementary work extends over 6 years between the ages of 6 and 12. The secondary schools, known as gymnasia (realschulen or lycea), have courses covering seven years, students attending between the ages of 11 and 18. Graduation from the gymnasium admits to the five-year medical course, which includes preliminary courses in physics, chemistry and biology. The entire course, therefore, requires: elementary work, 5 years; gymnasium, 7 years, and medicine, 5 years, a total of 17 years. The minimum age at completion is 23. The degree of Doctor is not essential to practice, but may be obtained by writing special thesis and taking certain courses without necessarily requiring a longer course.

TURKEY.—Elementary education extends from the age of 6 to 10 years inclusive, intermediate education from 10 to 14, secondary education from 14 to 17 years and the medical education from 17 to 23. The total number of years, therefore, is 17 years and the minimum age at completion is 23. The sixth year of the medical course must be spent in a hospital.

URUGUAY.—Elementary education extends between the ages of 6 and 14 years, leading to the secondary, which extends from the 14th to the 18th year. A six-year medical course follows, which includes preliminary work in physics, chemistry and biology. The time to complete the entire work is 18 years and the minimum age at completion is 24.

MEDICAL COLLEGES OF THE WORLD

Nation.	Colleges.	Nation.	Colleges.
Argentine	2	Iceland	1
Australia	3	India	4
Austria	7	Ireland	4
Belgium	4	Italy	20
Bolivia	2	Japan	8
Brazil	3	Mexico	1
Canada	8	Netherlands	4
Chile	1	New Zealand	1
China	4	Norway	1
Colombia	1	Peru	1
Cuba	1	Portugal	3
Denmark	1	Roumania	2
Egypt	1	Russia	11
England	21	Scotland	8
France	7	Spain	9
Germany	20	Sweden	3
Greece	1	Switzerland	7
Guatemala	1	Syria	2
Haiti	1	Turkey	1
Honduras	1	Uruguay	1
Hungary	2	Wales	1

Total medical colleges in all foreign countries..... 185
Total in the United States alone..... 153

Counting also the 20 sectarian schools, the graduates of which treat diseases, gives the United States a total of 153.

MEDICAL STANDARDS ABROAD COMPARED

The list of foreign medical colleges, on pages 676 to 678, shows a total of 185 such colleges outside the United States, while this country alone has 153. All European medical schools are medical faculties of universities or are under the direct control of universities, and there are no proprietary schools such as predominate in this country.

The information given regarding preliminary education as well as collegiate and medical was obtained from original sources and from foreign publications and has been verified in most instances by the American consuls in the different countries.

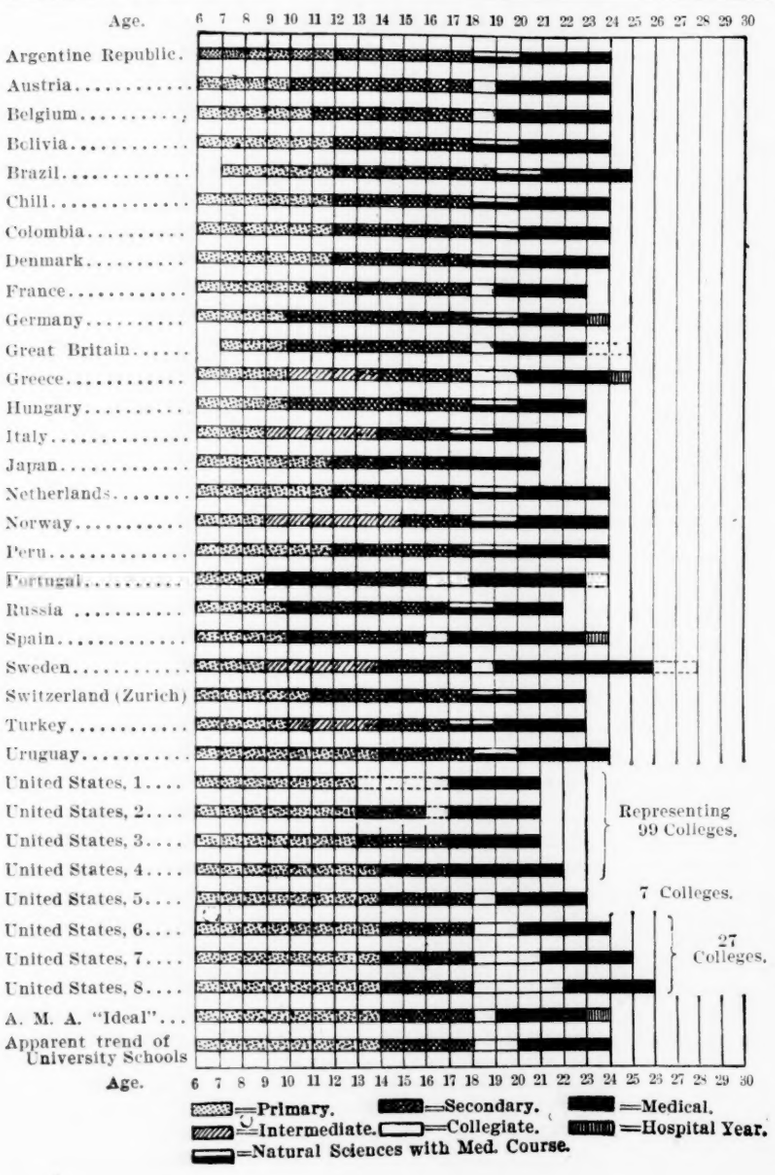
The requirements in twenty foreign countries are graphically presented in the accompanying chart, where each division of education is shown according to the ages at which students are in attendance. The shaded portions of the bands represent primary and secondary education, the black portions the medical, and the white portions represent the requirements of higher preliminary education, including work in physics, chemistry and biology. The chart allows valuable comparisons to be

made and, as measured by years, shows a uniformity of educational standards that is somewhat surprising. It is interesting to note how sharply the line representing the age of 18 separates the secondary from higher education.

The age at the completion of the medical course in each country, as shown in the chart, with one or two exceptions, represents the lowest age at which the student can secure the right to practice medicine, disregarding the rare exceptions when the student graduates at an earlier age. The average age is one or two years higher than is shown in the chart, since the regular course of study between the ages of 6 and 24 is often broken by sickness, failure to receive promotion, or other causes.

In the majority of foreign countries secondary education begins from two to five years earlier than in this country and in some countries has no direct connection with the elementary. In fact, in several European countries, in Great Britain and in France, for example, it appears that the majority of students entering the secondary schools secure their elementary instruction from private tutors or in preparatory courses offered by the secondary schools, rather than in the regular elementary schools.

PRELIMINARY AND MEDICAL EDUCATION AT HOME AND ABROAD



The United States and Japan are the only countries named in the chart which do not require preliminary work in physics, chemistry and biology of every medical student. Even the South American countries are ahead of the United States in this respect. In some countries named the work is taken in the first one or two years of the medical course, along with the usual medical studies, while in others, notably in France, Belgium and Sweden, it must be taken in a college of science or philosophy. In still others, as in Austria and in Great Britain, the work may be taken either in a college of liberal arts or in the medical school. In France this work was given as a part of the regular medical course until in 1893, when it was transferred to the college of science, because the laboratories and trained instructors in those colleges made it certain that the courses would be thoroughly taught.

Only one year devoted to the preliminary scientific studies is required by all but two of the countries named or else the work extends through about two years along with regular medical subjects. In no instance is more than two years of college work devoted entirely to preliminary study. This seems to indicate that the preliminary requirement by a few medical schools in this country of three and four years of college work is extreme and has no parallel in other countries.

In six of the countries named, disregarding rare exceptions, the earliest age at which the right to practice medicine can be secured, is 23. In three countries the age limit is 25 or beyond. But in the great majority the age limit is 24 and the entire course of elementary, secondary, college and medical education is completed in 18 years. This agrees with the "ideal standard" adopted at Portland, Ore., in 1905, by the American Medical Association, as well as with the so-called six-year combined course for the degrees of B.S. and M.D., which is being generally adopted by medical schools in this country.

The well-known diversity of standards of medical education in the United States at the present time is also shown in the chart. Preliminary standards range from a common school education up to the requirement of a college degree. Of the 133 colleges in the United States, 99 require a four-year high school education or less, as shown in Groups 1 to 4, while 27 colleges are now requiring two or more years of work in a college of arts, 23 of these having raised their requirements in the past six years. This group of colleges and the years when the higher requirement became effective are as follows:

HIGH STANDARD COLLEGES IN THE UNITED STATES.

College.	Began.
Johns Hopkins University Medical Department	1893
Harvard Medical School	1900
Western Reserve University Medical Department	1901
University of Chicago, Rush Medical College	1904
University of California, Medical Department	1905
University of Minnesota, College of Medicine and Surgery	1907
University of North Dakota, College of Medicine*	1907
University of Wisconsin, College of Medicine	1907
Cornell University Medical College	1908
Wake Forest College, School of Medicine*	1908
Leland Stanford Junior University, Department of Medicine	1909
Yale Medical School	1909
University of Kansas, School for Medicine	1909
University of Michigan, College of Medicine	1909
University of Nebraska, College of Medicine	1909

College.	Began.
University of South Dakota, College of Medicine*	1909
University of Colorado, School of Medicine	1910
Indiana University School of Medicine	1910
State University of Iowa, College of Medicine	1910
State University of Iowa, College of Homeopathic Medicine	1910
Drake University, College of Medicine	1910
University of Missouri, Department of Medicine*	1910
Dartmouth Medical School	1910
Columbia University College of Physicians and Surgeons	1910
Syracuse University College of Medicine	1910
University of Pennsylvania, Medical Department	1910
University of Utah, Medical Department*	1910

*Offer only two years in medicine.

There are 8 colleges which are now requiring for admission one year of collegiate work, devoted to physics, inorganic chemistry, biology and modern languages. These are:

College.	Began.
Northwestern University Medical School	1908
Fordham University School of Medicine	1908
Tulane University, Medical Department	1910
St. Louis University School of Medicine	1910
Washington University, Medical Department	1910
Ohio-Miami Medical College, University of Cincinnati	1910
University of Texas, Medical Department	1910
University of Virginia, Department of Medicine	1910

HIGHER PRELIMINARY REQUIREMENTS BY STATE BOARDS.

There are now eight state examining boards which have adopted preliminary requirements in advance of a four-year high school education. These are:

State Examining Board of	No. of Years Required.	Affects Students Matriculating.	Affects All Applicants After
North Dakota	2	1907-08	1911
South Dakota	1	1907-08	1911
Iowa	2	1907-08	1911
Minnesota	2	1908-09	1912
Colorado	1	1908-09	1912
Connecticut	1	1910-11	1914
Kansas	1	1910-11	1914
Indiana	2	1910-11	1914

STANDARDS OF THE COUNCIL ON MEDICAL EDUCATION OF THE AMERICAN MEDICAL ASSOCIATION

These standards were prepared by the Council on Medical Education acting under the direction of the House of Delegates of the American Medical Association.

Standard Now Recommended

The minimum standard now recommended prerequisite to the practice of medicine is as follows:

1. (a) The preliminary requirement to be a four-year high school education or its equivalent, such as would admit the student to one of our recognized universities; (b) and in addition (as soon as conditions warrant), a year of not less than nine months, devoted to the study of physics, chemistry, biology and one language (preferably German or French), to be taken either in a college of liberal arts or in a recognized medical college having a preliminary year devoted exclusively to the subjects mentioned.

2. There should be a requirement that previous to matriculation in a medical college every student must secure from the State Examining Board a "medical student's entrance certificate," which would be issued either on presentation of credentials of preliminary education not less than that laid down by requirement one, or on passing an examination given by the Board and which will satisfy the Board that the student has an equivalent education.

3. A medical training in a medical college, having four years of not less than thirty weeks each year, exclusive of holidays, of thirty hours per week of actual work.

4. Graduation from an approved medical college required to entitle the candidate to an examination before a state examining board.

5. The passing of a satisfactory examination before a state examining board.

The Ideal Standard

The ideal standard to be aimed at from the present viewpoint should consist of: (A) Preliminary education sufficient to enable the candidate to enter our recognized universities, such qualifications to be passed upon by the state authorities. (B) A course of at least one year to be devoted to physics, chemistry and biology, such arrangement to be made that this year could be taken either in a college of liberal arts or in the medical school. (C) Four years in pure medical work, the first two of which should be largely spent in laboratories of anatomy, physiology, pathology, pharmacology, etc., and the last two in close contact with patients in dispensaries and hospitals in the study of medicine, surgery, obstetrics, and the specialties. (D) A sixth year as an interne in a hospital or dispensary should then complete the medical course.

Under such a scheme the majority of men would begin the study of medicine between 18 and 19 years of age, and would graduate from the hospital interneship at from 24 to 25. A college education is recognized as a desirable preparation for a limited number of men, but it is thought that it is not and never will be desirable to make such college education a requirement to the study of medicine, as it would make the age of graduation from 27 to 28 years, which is regarded as too old a period at which the young medical man should begin his life's work. It is obvious that this very desirable scheme of requirements can not be at once demanded or recommended.

SCHEDULE OF SUBJECTS OFFERED IN ACADEMIC AND SECONDARY SCHOOLS, CREDITS IN WHICH ARE ACCEPTABLE FOR ENTRANCE TO MEDICAL COLLEGES

Based on the requirements of the College Entrance Examining Board.

ENGLISH SUBJECTS.	UNITS.	REQUIRED.	ELECTIVE.
READING AND PRACTICE	2	2	...
Study and Practice	1	...	1
MATHEMATICS			
ALGEBRA, to QUADRATICS	1	1	...
ALGEBRA (Quadratic Equations, Binomial Theorem and Progressions	½	...	½
PLANE GEOMETRY	1	1	...
Solid Geometry	½	...	½
Trigonometry	½	...	½
LATIN			
GRAMMAR AND COMPOSITION	1	1	...
CAESAR	1	1	...
Cicero	1	...	1
Virgil	1	...	1
Cornelius Nepos	1	...	1
Greek			
Grammar and Composition	1	*	1
Xenophon	1	...	1
Homer	1	...	1
German			
Elementary	2	**	2
Intermediate	1	...	1
French			
Elementary	2	**	2
Intermediate	1	...	1
Spanish			
Elementary	2	**	2
HISTORY			
UNITED STATES HISTORY	1	1	...
Greek and Roman History	1	...	1
Medieval and Modern	1	...	1
English	1	...	1
SCIENCE †			
Botany and Zoology, each	½	...	½
or Biology	1	...	1
Chemistry	1	...	1
PHYSICS	1	1	...
Physiography	½	...	½
Physiology	½	...	½
Drawing	1	...	1
Music			
Appreciation	1	...	1
Harmony	1	...	1
Total	34	8	26

A *unit* is the credit value of 36 weeks' work of 5 recitation periods per week, each recitation period to be of not less than 40 minutes.

Required Branches: Of the 14 units of high school work it is suggested that the subjects in capitals aggregating 8 units should be required. Other work to the amount of at least 6 units may be made up from any of the other subjects of the above schedule.

* Two units of Greek may be substituted for the two required units of Latin.

** A reading knowledge of German, French or other modern language is recommended in the high school courses of students contemplating the study of medicine without higher preliminary qualifications.

† It should be understood that each science course must include laboratory work.

An Acceptable Medical College

The following outline of the essentials of an acceptable medical college has been issued by the Council on Medical Education of the American Medical Association for its suggestive value in the rapid development now in progress among the medical colleges in the United States:

TABLE 1.—STATISTICS OF MEDICAL COLLEGES IN THE UNITED STATES

Number.	NAME AND LOCATION OF COLLEGE	Population of city where college is located. (Census Bureau's estimate for 1909).	No. of students registered 1909-10. Men.	No. of students registered 1909-10. Women.	Graduates 1910. Men.	Graduates 1910. Women.	No. of teachers.	Grads. with A.B. or B.S.	Weeks in college year.	Total fees. (Dollars.) 1st year.	Total fees. (Dollars.) 2nd year.	Total fees. (Dollars.) 3rd year.	Total fees. (Dollars.) 4th year.	Executive Officer.	Session of 1910-11. Begins 1910.	Session of 1910-11. Ends 1911.	Number
	ALABAMA		**337**	**1**	**63**	**0**	**2**										
1	Birmingham Medical College, Birmingham	49,553	208	1	23	0	2	34	30	100	100	100	125	B. L. Wyman, M.D., Dean	Sept. 28	May 16	1
2	University of Alabama, Medical Department, Mobile	45,122	179	...	40	...	...	25	30	100	100	100	125	Rhett Goode, M.D., Dean	Sept. 19	May 9	2
	ARKANSAS		**274**	**1**	**55**	**0**	**1**										
3	College of Physicians and Surgeons, Little Rock	43,688	103	1	29	0	...	40	28	100	100	100	125	J. P. Runyan, M.D., Dean	Oct. 1	May 1	3
4	University of Arkansas, Medical Department, Little Rock	43,688	171	...	26	...	1	38	31	100	100	100	125	C. E. Witt, M.D., Secretary	Sept. 15	May 6	4
	CALIFORNIA		**349**	**37**	**53**	**5**	**10**										
5	College of Physicians and Surgeons, San Francisco	400,000	27	2	7	0	...	60	36	150	150	150	150	Ethan H. Smith, M.D., Dean	Sept. 1	June 1	5
6	Cooper Medical College, San Francisco (a)	400 000	79	1	17	0	1	51	34	...	...	170	185	Henry Gibbons, Jr., M.D., Dean	Aug. 15	May 5	6
7	Hahnemann Medical College of the Pacific, San Francisco.—H	400 000	32	2	1	0	...	42	34	155	100	100	100	James W. Ward, M.D., Dean	Aug. 11	April 27	7
8	Leland Stanford Junior University, Dept. of Medicine, Palo Alto	1,658	11	4	...	...	...	23	36	175	175	...	...	Emmet Rixford, M.D., Secretary	Aug. 25	May 22	8
9	University of California, Medical Department, San Francisco	400,000	41	11	3	1	3	56	35	150	150	150	150	Arnold A. D'Ancona, M.D., Dean	Aug. 22	May 17	9
10	University of California, Medical Department, Los Angeles	300,000	47	8	6	3	2	61	34	150	150	150	150	W. Jarvis Barlow, M.D., Dean	Sept. 15	May 31	10
11	California Eclectic Medical College, Los Angeles.—E	300,000	22	...	2	...	...	31	32	125	120	100	125	J. A. Munk, M.D., Dean	Sept. 19	May 18	11
12	College of Physicians and Surgeons, Los Angeles	303,000	64	5	11	1	2	44	36	155	150	150	175	Charles W. Bryson, M.D., Dean	Sept. 14	June 15	12
13	Oakland College of Medicine and Surgery, Oakland	225,000	19	1	3	0	2	33	36	210	200	150	150	Edward N. Ewer, M.D., Registrar	Aug. 15	May 20	13
14	College of Medical Evangelists, Loma Linda (m)	100	7	3	...	...	...	9	36	105	100	100	100‡	George Knapp Abbott, M.D., Dean	Sept. 29	June 27	14
	COLORADO		**182**	**12**	**28**	**1**	**6**										
15	Denver and Gross College of Medicine, Denver (b)	156,726	110	7	21	0	...	65	35	...	...	103	126	Frost C. Buchtel, M.D., Secretary	Sept. 12	.....	15
16	University of Colorado, School of Medicine, Boulder (b)	12,000	72	5	7	1	6	43	35	75	75	75	75	William P. Harlow, M.D., Dean	Sept. 12	June 7	16
	CONNECTICUT		**124**	...	**27**	...	**7**										
17	Yale Medical School, New Haven	127,827	124	...	27	...	...	66	35	173	153	150	160	George Blumer, M.D., Dean	Sept. 29	June 21	17
	DISTRICT OF COLUMBIA		**427**	**9**	**70**	**0**	**13**										
18	George Washington University, Dept. of Medicine, Washington	343,003	104	5	26	0	5	81	33	150	150	150	150	W. C. Borden, M.D., Dean	Sept. 28	June 7	18
19	Georgetown University, School of Medicine, Washington	343,003	117	...	14	...	...	74	33	150	150	150	150	George M. Kober, M.D., Dean	Sept. 26	June 11	19
20	Howard University, Medical Department, Washington	343,003	206	4	30	0	8	48	31	107	102	102	109	Edward A. Balloch, M.D., Dean	Oct. 1	May 25	20
	GEORGIA		**801**	**6**	**165**	**3**	**9**										
21	Atlanta College of Physicians and Surgeons, Atlanta	111,825	334	...	63	...	4	55	29	100	100	100	100	W. S. Elkin, M.D., Dean	Sept. 21	May 2	21
22	Atlanta School of Medicine, Atlanta	111,825	227	...	42	...	...	40	28	75	75	100	130	Edward G. Jones, M.D., Proctor	Sept. 20	April 20	22
23	Georgia College of Eclectic Medicine and Surgery, Atlanta.—E	111,825	89	1	34	1	3	20	28	80	80	80	80	E. B. Thomas, M.D., Dean	Sept. 21	April 21	23
24	Hospital Medical College, Atlanta.—E. (n)	111,825	38	5	13	2	...	24	26	80	80	80	110	W. Bernard Lingo, M.D., Dean	Sept. 15	April 1	24
25	Medical College of Georgia, Augusta	44,967	113	...	13	...	2	34	28	100	100	100	100	William H. Doughty, Jr., M.D., Dean	Oct. 1	May 1	25
	ILLINOIS		**2760**	**331**	**564**	**37**	**133**										
26	American Medical Missionary College, Chicago	2,224,491	47	21	9	0	2	33	35	182	182	175	175	Benton N. Colver, M.D., Dean, Battle Creek Mich.	Sept. 13	June 9	26
27	Bennett Medical College, Chicago (c)	2,224,491	215	16	32	6	3	108	33	130	125	125	125	William F. Waugh, M.D., Dean	Sept. 20	May 31	27
28	Chicago College of Medicine and Surgery	2,224,491	549	31	85	4	11	73	31	125	120	100	115	G. E. Wyneken, M.D., Registrar	Sept. 27	May 15	28
29	College of Physicians and Surgeons, Chicago	2,224,491	499	27	121	10	17	150	33	155	155	150	175	William E. Quine, M.D., Dean	Sept. 27	June 7	29
30	College of Medicine and Surgery, Chicago.—Ph.M	2,224,491	45	12	14	2	...	61	30	120	115	115	140	William F. Schaare, M.D., Secretary	Sept. 21	May 12	30
31	Hahnemann Medical College and Hospital, Chicago.—H	2,224,491	122	9	28	3	5	69	32	100	100	100	100	W. Henry Wilson, M.D., Registrar	Sept. 26	May 25	31
32	Hering Medical College, Chicago—H	2,224,491	32	10	10	2	2	52	32	100	100	100	100	Robert N. Morris, M.D., Dean	Sept. 27	June 1	32
33	Illinois Medical College (c)	2,224,491	50	5	17	2	...	...	...	...	...	...	...	.....	.....	.....	33
34	Jenner Medical College, Chicago.*	2,224,491	186	19	20	3	...	64	40	125	110	110	135	John D. MacKellar, M.D., Dean	Aug. 29	July 1	34
35	Northwestern University Medical School, Chicago	2,224,491	485	152	142	0	21	163	31	190	200	192	185	Arthur R. Edwards, M.D., Dean	Oct. 4	May 29	35
36	Reliance Medical College.*	2 224,491	80	11	6	1	...	65	39	130	130	125	125	J. F. Burkholder, M.D., President	Sept. 7	June 29	36
37	Rush Medical College, Chicago	2,224,491	450	18	81	4	72	269	34	180	180	180	180	John M. Dodson, M.D., Dean	Oct. 1	June 17	37
	INDIANA		**239**	**9**	**56**	**3**	**13**										
38	Indiana University, School of Medicine, Indianapolis	241,826	239	9	56	3	13	183	35	100	100	130	130	B. D. Myers, Secretary, Bloomington; Edmund D. Clark, M.D., Indianapolis	Sept. 22	June 16	38
	IOWA		**312**	**21**	**71**	**3**	**13**										
39	Drake University, College of Medicine, Des Moines	86,415	99	9	21	2	2	50	35	150	150	150	150	William W. Pearson, M.D., Dean	Sept. 19	June 14	39
40	State University of Iowa, College of Medicine, Iowa City	8,197	180	10	43	1	10	40	35	50	50	50	50	James R. Guthrie, M.D., Dean, Dubuque	Sept. 19	June 14	40
41	State Univ. of Iowa, Coll. of Homeopathic Med., Iowa City.—H	8,197	33	2	7	0	1	30	35	50	50	50	50	George Royal, M.D., Dean	Sept. 19	June 14	41
	KANSAS		**146**	**10**	**31**	**1**	**5**										
42	Kansas Medical College, Topeka	44,757	64	3	12	0	3	44	35	80	75	75	75	William E. McVey, M.D., Dean	Sept. 14	June 7	42
43	University of Kansas, School of Medicine, Kansas City (d) (i)	277,427	82	7	19	1	2	87	34	30	25	100	110	Merwin T. Sudler, M.D., Dean, Lawrence; George H. Hoxie, M.D., Dean, Rosedale	Sept. 19	June 7	43
	KENTUCKY		**666**	**2**	**212**	**0**	...										
44	Louisville National Medical College, Louisville	236,688	50	1	8	0	...	23	31	60	55	55	55	E. S. Porter, M.D., Dean	Oct. 1	May 20	44
45	Southwestern Homeopathic College, Louisville.—H	236,688	12	1	2	0	...	27	31	80	80	80	100	George S. Coon, M.D., Dean	Oct. 6	May 25	45
46	University of Louisville, Medical Department, Louisville	236,688	624	...	202	...	...	92	29	105	105	105	130	Thomas C. Evans, M.D., Dean	Oct. 10	May 19	46
	LOUISIANA		**435**	**1**	**197**	**0**	**21**										
47	Flint Medical College, New Orleans	327,662	19	...	4	...	1	15	29	60	56	50	50	R. T. Fuller, M.D., Dean	Sept. 29	May 9	47
48	Tulane University Medical Department, New Orleans	327,662	416	1	193	0	20	88	32	150	150	160	160	Isadore Dyer, M.D., Dean	Oct. 1	June 1	48
	MAINE		**74**	...	**20**	...	**8**										
49	Medical School of Maine, Portland	57,675	74	...	20	...	8	37	33	100	100	100	100	Alfred Mitchell, M.D., Dean	Oct. 13	June 21	49

	MARYLAND		**1305**	**39**	**323**	**10**	**76**												
50	Atlantic Medical College, Baltimore.—P	576,023	19	...	14	...	...	40	32	105	100	90	105	Eldridge C. Price, M.D., Dean	Oct. 1	June 1	50
51	Baltimore Medical College, Baltimore	576,023	270	...	54	...	2	71	33	125	125	125	155	David Streett, M.D., Dean	Sept. 20	May 27	51
52	College of Physicians and Surgeons, Baltimore	576,023	283	...	66	...	1	58	32	155	155	155	185	Charles F. Bevan, M.D., Dean	Oct. 1	June 1	52
53	Johns Hopkins University, Medical Department, Baltimore	576,023	312	22	68	4	72	112	33	200	200	200	200	William H. Howell, M.D., Dean	Oct. 4	June 13	53
54	Maryland Medical College, Baltimore	576,023	112	...	36	...	...	38	32	111	111	105	135	W. S. Smith, M.D., Dean	Oct. 1	May 31	54
55	University of Maryland, School of Medicine, Baltimore	576,023	309	...	85	...	1	62	32	155	155	155	185	R. Dorsey Coale, M.D., Dean	Oct. 1	June 1	55
56	Woman's Medical College of Baltimore (e)	576,023	....	17	...	6	...	...	...	...	...	...	...	.....	.....	.....	56
	MASSACHUSETTS		**802**	**64**	**147**	**13**	**66**												
57	Boston University, School of Medicine.—H	622,970	56	23	9	5	3	66	32	125	125	125	125	John P. Sutherland, M.D., Dean	Oct. 6	June 7	57
58	College of Physicians and Surgeons, Boston (o)	622,970	72	8	24	4	...	56	35	100	120	105	130	Thomas D. Crothers	Sept. 21	June 14	58
59	Harvard Medical School, Boston	622,970	279	...	66	...	60	171	32	200	200	200	200	Henry A. Christian, M.D., Dean	Sept. 29	June 1	59
60	Tufts College Medical School, Boston	622,970	395	33	48	4	3	107	32	155	155	155	155	Frederic M. Briggs, M.D., Secretary	Sept. 28	June 1	60
	MICHIGAN		**543**	**24**	**113**	**5**	**26**												
61	Detroit College of Medicine, Detroit	384,855	152	...	38	...	2	113	32	115	120	100	140	F. W. Walker, M.D., Secretary	Sept. 21	May 25	61
62	Detroit Homeopathic College, Detroit.—H	384,855	23	3	4	1	...	36	32	95	85	75	95	Fred E. Thompson, M.D., Registrar	Sept. 14	May 1	62
63	University of Michigan, Dept. of Med. and Surg., Ann Arbor (i)	14,711	299	16	62	2	24	74	35	105	95	95	55	Victor C. Vaughan, M.D., Dean	Oct. 4	June 29	63
64	University of Michigan, Homeopathic College, Ann Arbor.—H. (i)	14,711	69	5	9	2	...	22	35	105	95	95	55	W. B. Hinsdale, M.D., Dean	Oct. 4	June 29	64
	MINNESOTA		**166**	**10**	**33**	**1**	**16**												
65	University of Minnesota, Coll. of Med. and Surg., Minneapolis (h)	533,567	150	10	30	1	16	128	35	150	100	100	100	F. F. Wesbrook, M.D., Dean	Sept. 13	June 8	65
66	Hamline University, Medical Department, Minneapolis (p)	533,567	16	...	3	...	...	...	...	...	...	...	...	.....	.....	.....	65
	MISSISSIPPI		**143**	**3**	**21**	**1**	**1**												
67	University of Mississippi, Medical Department, Oxford.†	1,825	50	...	4	...	1	13	32	75	75	...	...	W. S. Leathers, M.D., Dean	Sept. 22	June 1	67
68	Mississippi Medical College, Meridian	21,937	93	3	17	1	...	25	28	85	85	75	100	W. W. Hamilton, M.D., Secretary	Oct. 3	April 30	68
	MISSOURI		**1281**	**29**	**313**	**4**	**22**												
69	University of Missouri, Medical Department, Columbia.†	5,651	29	...	...	...	...	18	34	70	70	...	...	C. M. Jackson, M.D., Dean	Sept. 22	June 8	69
70	Kansas City Hahnemann Medical College, Kansas City.—H. (d)	277,427	50	8	19	2	...	43	33	105	100	100	100	William E. Cramer, M.D., Dean	Sept. 6	May 15	70
71	University Medical College, Kansas City (d)	277,427	186	...	48	...	...	47	33	100	100	100	125	J. M. Frankenburger, M.D., Dean	Sept. 6	May 15	71
72	Eclectic Medical University, Kansas City.—E. (f)	277,427	21	...	9	...	...	32	30	90	95	100	115	M. D. L. Isley, M.D., Secretary	Sept. 6	April 30	72
73	Ensworth Medical College, St. Joseph	125,504	68	...	17	...	...	34	30	90	95	75	95	T. E. Potter, M.D., Secretary	Sept. 14	May 1	73
74	American Medical College, St. Louis.—E. (g)	686,369	31	8	7	0	...	30	35	100	100	100	100	James Moores Ball, M.D., Dean	Sept. 5	June 1	74
75	Barnes Medical College, St. Louis	686,369	174	10	49	2	...	48	32	100	100	100	100	A. R. Kieffer, M.D., Dean	Sept. 14	May 13	75
76	Hippocratean College of Medicine, St. Louis (e)	686,369	28	3	...	...	...	26	...	...	...	...	...	.....	.....	.....	76
77	St. Louis University, School of Medicine	686,369	261	...	66	...	12	112	32	115	110	110	120	Elias Potter Lyon, Ph.D., Dean	Oct. 1	May 29	77
78	St. Louis College of Physicians and Surgeons (n)	686,369	228	...	42	...	...	41	32	105	100	100	95	Waldo Briggs, M.D., Dean	Sept. 14	May 16	78
79	Washington University, Medical Department, St. Louis	686,369	205	...	56	...	10	92	34	138	133	117	105	George Dock, M.D., Dean	Sept. 20	June 8	79
	NEBRASKA		**306**	**22**	**71**	**2**	**11**												
80	Creighton Medical College, Omaha	134,972	181	13	44	...	6	49	31	105	100	100	105	D. C. Bryant, M.D., Dean	Sept. 5	April 29	80
81	University of Nebraska, College of Medicine, Lincoln and Omaha	134,972	71	5	15	1	5	68	34	101	112	100	105	R. H. Wolcott, M.D., Acting Dean, Lincoln	Sept. 20	June 7	81
														.....Omaha	Sept. 13	May 27	
92	Lincoln Medical College, Lincoln.—E	52,308	54	4	12	1	...	37	34	90	90	90	90	F. L. Wilmeth, M.D., Dean	Sept. 7	May 20	82
	NEW HAMPSHIRE		**57**	...	**10**	...	**7**												
83	Dartmouth Medical School, Hanover	1,884	57	...	10	...	7	24	36	125	125	125	125	G. S. Graham, M.D., Secretary, 1st two years	Sept. 22	June 24	83
														.....Last two years	Aug. 2	March 28	
	NEW YORK		**2145**	**63**	**410**	**15**	**76**												
84	Albany Medical College, Albany	100,730	196	...	41	...	1	93	31	130	145	120	130	Willis G. Tucker, M.D., Registrar	Sept. 20	May 16	84
85	Columbia University, College of Phys. and Surg., New York City	4,450,963	360	...	69	...	43	176	33	255	250	250	275	Samuel W. Lambert, M.D., Dean	Sept. 28	June 7	85
86	Cornell University Medical College, New York City	4,450,963	144	20	61	7	16	139	34	190	185	185	200	W. M. Polk, M.D., Dean	Sept. 28	June 14	86
87	Eclectic Medical College of the City of New York.—E	4,450,963	91	...	13	...	...	38	32	125	125	125	155	George W. Boskowitz, M.D., Dean	Sept. 14	May 14	87
88	Fordham University School of Medicine, New York City	4,450,963	75	...	6	...	1	78	35	200	200	200	200	James J. Walsh, M.D., Dean	Sept. 21	June 15	88
89	Long Island College Hospital, New York City	4,450,963	368	...	72	...	3	95	32	205	205	160	195	Joseph H. Raymond, M.D., Secretary	Oct. 1	June 1	89
90	New York Homeopathic Medical College and Hospital.—H	4,450,963	125	...	24	...	...	74	32	140	130	125	155	Royal S. Copeland, M.D., Dean	Oct. 4	June 1	90
91	New York Medical College and Hospital for Women.—H	4,450,963	....	24	...	4	...	38	30	155	150	135	155	Helen Cooley Palmer, M.D., Dean	Sept. 20	May 31	91
92	University and Bellevue Hospital Medical College, New York	4,450,963	474	...	64	...	3	166	32	200	200	200	200	Egbert LeFevre, M.D., Dean	Sept. 28	June 1	92
93	Syracuse University, College of Medicine, Syracuse	125,378	131	9	26	1	6	60	33	181	191	151	166	John L. Heffron, M.D., Dean	Oct. 4	June 14	93
94	University of Buffalo, Medical Department, Buffalo	396,535	181	10	34	3	3	95	32	185	180	140	140	Matthew D. Mann, M.D., Dean	Sept. 26	June 1	94
	NORTH CAROLINA		**351**	...	**51**	...	...												
95	Leonard Medical School, Raleigh	14,512	133	...	23	...	...	12	29	15	15	15	25	William Moncure, M.D., Dean	Sept. 29	May 11	95
96	University of North Carolina, Medical Department, Chapel Hill.†	1,099	74	...	14	...	...	47	35	70	70	...	...	I. H. Manning, M.D., Dean	Sept. 5	May 30	96
97	North Carolina Medical College, Charlotte	35,101	107	...	14	...	...	34	30	95	92	80	105	R. H. Lafferty, M.D., Registrar	Sept. 14	May 1	97
98	Wake Forest School of Medicine, Wake Forest.†	823	37	...	...	...	...	10	34	105	103	...	...	John B. Powers, M.D., Dean	Sept. 6	May 20	98
	NORTH DAKOTA		**34**	**2**	...	...	...												
99	University of North Dakota, Med. Dept., University (Grand Forks)†	14,000	34	2	...	...	...	24	35	50	50	...	...	M. A. Brannon, B.S., Dean	Sept. 20	June 15	99
	OHIO		**790**	**26**	**156**	**7**	**29**												
100	Cleveland College of Physicians and Surgeons, Cleveland (j)	506,938	91	7	19	2	1	...	...	...	...	...	...	.....	.....	.....	100
101	Cleveland Homeopathic Medical College, Cleveland.—H. (k)	506,938	40	11	2	3	...	53	30	125	125	125	125	Joseph A. Lytle, M.D., Registrar	Sept. 21	May 11	101
102	Western Reserve University Medical Department, Cleveland	506,938	94	...	21	...	18	84	34	130	130	130	130	F. C. Waite, M.D., Secretary	Oct. 1	June 15	102
103	Eclectic Medical College, Cincinnati.—E	350,212	89	2	20	0	...	24	31	100	100	100	100	John K. Scudder, Secretary	Sept. 19	May 10	103
104	Ohio-Miami Medical College of the University of Cincinnati	350,212	190	1	41	0	8	127	32	130	125	125	125	E. O. Smith, M.D., Secretary	Sept. 28	June 3	104
105	Pulte Medical College, Cincinnati.—H. (k)	350,212	14	2	4	1	...	...	...	...	...	...	...	.....	.....	.....	105
106	Starling-Ohio Medical College, Columbus	155,340	218	2	41	0	...	62	32	130	125	125	125	William J. Means, M.D., Dean	Sept. 21	May 24	106
107	Toledo Medical College, Toledo	174,059	44	1	8	1	2	51	31	105	100	100	100	E. I. McKesson, M.D., Secretary	Oct. 3	May 26	107
	OKLAHOMA		**65**	**7**	**6**	**1**	...												
108	Epworth College of Medicine, Oklahoma City (e)	45,580	46	5	6	1	...	...	...	...	...	...	...	.....	.....	.....	108
109	University of Oklahoma, School of Medicine, Norman (l)	3,040	19	2	...	...	...	40	35	30	10	100	105	J. D. MacLaren, M.D., Secretary	Sept. 14	June 8	109
	OREGON		**110**	**5**	**19**	**0**	**1**												
110	University of Oregon, Medical Department, Portland	119,607	75	5	15	0	1	50	30	142	138	107	58	S. E. Josephi, M.D., Dean	Sept. 12	May 1	110
111	Willamette University, Medical Department, Salem	.....	55	...	4	...	...	20	32	123	110	88	58	W. H. Byrd, M.D., Dean	Oct. 1	June 1	111

TABLE 1.—STATISTICS OF MEDICAL COLLEGES IN THE UNITED STATES.—(Concluded)

Number.	NAME AND LOCATION OF COLLEGE	Population of city where college is located. (Census Bureau's estimate for 1909).	No. of students registered 1909-10.		Graduates 1910.		Grads. with A.B. or B.S.	No. of teachers.	Weeks in college year.	Total fees. (Dollars.)				Executive Officer.	Session of 1910-11.		Number
			Men.	Women.	Men.	Women.				1st year.	2nd year	3rd year.	4th year.		Begins 1910.	Ends 1911.	
	PENNSYLVANIA		2157	137	470	38	61										
112	Hahnemann Medical College and Hospital, Philadelphia.—H	1,515,756	159	...	37	...	2	80	32	155	150	150	150	William B. Van Lennep, M.D., Dean	Sept. 26	June 1	112
113	Jefferson Medical College, Philadelphia	1,515,756	531	...	141	...	18	140	33	180	180	180	180	James W. Holland, M.D., Dean	Sept. 26	June 5	113
114	Medico-Chirurgical College of Philadelphia	1,515 756	455	...	69	...	...	109	33	150	150	150	150	Seneca Egbert, M.D., Dean	Sept. 26	June 3	114
115	Temple University, Medical Department, Philadelphia	1,515 756	183	14	33	3	...	84	34	155	150	150	150	Frank C. Hammond, M.D., Dean	Sept. 15	June 3	115
116	University of Pennsylvania, Department of Medicine, Philadelphia	1,515.756	529	...	134	...	38	164	36	218	213	210	212	Allen J. Smith, M.D., Dean	Sept. 23	June 21	116
117	Woman's Medical College of Pennsylvania, Philadelphia	1,515.756	....	114	...	31	2	60	33	146	146	144	144	Clara Marshall, M.D., Dean	Sept. 21	May 31	117
118	University of Pittsburg, Medical Department, Pittsburg	558,123	300	9	56	4	1	103	33	210	210	210	210	Thomas S. Arbuthnot, M.D., Dean	Oct. 4	June 14	118
	PHILIPPINE ISLANDS		431	...	159	...	18										
119	Philippine Medical School, Manila (m)	219.928	52	...	8	...	...	42	35	...	...	...	...	Harry T. Marshall, M.D., Secretary	June 6	Feb. 25	119
120	University of St. Thomas, Faculty of Medicine, Manila (m)	219,928	379	...	151	...	18	30	34	...	...	...	...	Blas C. Alcuaz, M.D., Secretary	July 2	March 7	120
	SOUTH CAROLINA		227	2	38	0	7										
121	Medical College of South Carolina, Charleston	56,573	227	2	38	0	7	33	32	100	100	75	75	Robert Wilson, Jr., M.D., Dean	Oct. 1	May 31	121
	SOUTH DAKOTA		6	1	...	...	...										
122	University of South Dakota, College of Medicine, Vermilion.†	2,183	6	1	...	...	...	9	33	60	60	...	...	C. P. Lommen, B.S., Dean	Sept. 12	June 8	122
	TENNESSEE		1541	11	320	3	19										
123	Knoxville Medical College, Knoxville	37,758	21	1	1	0	...	11	26	45	40	45	50	D. W. Crawford, M.D., Registrar	Nov. 1	May 31	123
124	Lincoln Memorial University Medical Department, Knoxville	37,758	95	3	20	0	...	29	28	80	75	75	100	S. L. Jones, M.D., Dean	Oct. 1	May 1	124
125	Meharry Medical College, Nashville	103.476	277	4	58	3	5	26	29	56	59	57	65	W. W. Hubbard, M.D., Dean	Sept. 14	April 25	1.5
126	Universities of Nashville and Tennessee, Department of Medicine	103.476	203	...	65	...	3	51	31	125	125	125	150	R. O. Tucker, M.D., Dean	Sept. 5	May 1	126
127	Vanderbilt University, Medical Department, Nashville	106.476	271	...	39	...	5	47	30	125	125	125	150	William L. Dudley, M.D., Dean	Sept. 14	May 1	127
128	College of Physicians and Surgeons, Memphis	136 363	104	1	17	0	4	42	30	100	100	100	125	E. C. Ellett, M.D., Dean	Sept. 15	May 1	128
129	Memphis Hospital Medical College, Memphis	136,363	425	...	101	...	2	38	30	100	100	100	125	W. B. Rogers, M.D., Dean	Oct. 1	May 18	129
130	University of West Tennessee, Medical Department, Memphis	136.363	34	1	6	0	...	16	28	50	50	50	60	M. V. Lynk, M.D., Dean	Sept. 14	April 14	130
131	Chattanooga Medical College, Chattanooga (e)	34,654	111	1	18	0	...	...	...	...	...	...	...	.....	.....	.....	131
	TEXAS		406	9	88	1	2										
132	Fort Worth University, Medical Department, Fort Worth	68,137	80	1	28	0	...	38	31	105	105	105	130	W. R. Howard, M.D., Secretary	Sept. 26	May 12	132
133	University of Texas, Department of Medicine, Galveston	38 000	198	8	34	1	2	23	32	55	30	20	5	William S. Carter, M.D., Dean	Oct. 1	May 31	133
134	Baylor University, College of Medicine, Dallas	104.541	67	...	9	...	...	28	28	105	100	100	125	Edward H. Carey, M.D., Dean	Oct. 3	May 1	134
135	Southwestern University Medical College, Dallas	104,541	61	...	17	...	...	33	28	110	105	100	125	John O. McReynolds, M.D., Dean	Sept. 29	April 30	135
	UTAH		29	1	...	...	...							George M. Marshall, A.M., Acting Dean	Sept. 19	June 3	136
136	University of Utah, School of Medicine, Salt Lake City.†	64,538	29	1	...	...	...	16	34	65	65	...	...	J. N. Jenne, M.D., Secretary	Nov. 14	June 20 *	137
	VERMONT		178	...	30	...	2										
137	University of Vermont, College of Medicine, Burlington	21,880	178	...	30	...	2	54	29	135	135	135	165	J. N. Jenne, M.D., Secretary	Sept. 13	May 30	138
	VIRGINIA		415	...	91	...	7							Christopher Tompkins, M.D., Dean	Sept. 14	May 25	139
138	Medical College of Virginia, Richmond	109.461	191	...	38	...	...	54	34	100	100	100	100	A. L. Gray, M.D., Dean	Sept. 15	June 14	140
139	University College of Medicine, Richmond	109 461	137	...	33	...	1	66	33	100	100	100	130	R. H. Whitehead, M.D., Dean			
140	University of Virginia, Department of Medicine, Charlottesville	10.000	87	...	31	...	6	30	36	150	140	120	100				
	WEST VIRGINIA		27	...	...	...	...							John N. Simpson, M.D., Dean	Sept. 15	June 15	141
141	West Virginia University, College of Medicine, Morgantown.†	14,500	27	...	...	...	...	9	36	50	50	...	...				
	WISCONSIN		380	12	50	3	10										
142	Marquette University, Medical Department, Milwaukee	332,495	285	8	45	2	10	62	30	135	135	135	150	Warren B. Hill, M.D., Dean	Oct. 4	May 22	142
143	Wisconsin College of Physicians and Surgeons, Milwaukee	332,495	49	2	5	1	...	56	31	125	125	125	125	Thomas C. Phillips, M.D., Dean	Oct. 3	May 30	143
144	University of Wisconsin, College of Medicine, Madison.†	27,610	46	2	...	...	...	19	35	130	130	...	...	Charles R. Bardeen, M.D., Dean	Sept. 29	June 23	144
	CANADA		1722	22	303	5	76										
145	Dalhousie University, Halifax Medical College, Halifax, N. S. (m)	51 000	57	3	7	2	5	27	32	91	101	112	121	A. W. H. Lindsay, M.D., Secretary	Aug. 25	April 27	145
146	Queen's University, Faculty of Medicine, Kingston, Ontario (m)	19.264	228	...	30	...	...	26	30	100	100	100	130	A. R. B. Williamson, M.D., Dean	Sept. 28	April 26	146
147	Western University, Faculty of Medicine, London, Ontario (m)	49.431	116	...	20	...	8	22	30	...	...	...	...	A. R. B. Williamson, M.D., Dean	Sept. 15	May 1	147
148	McGill University, Medical Faculty, Montreal, Que. (m)	375 000	339	...	79	...	19	101	31	138	138	148	154	W. E. Waugh, M.D., Registrar	Oct. 3	May 30	148
149	Laval University, Medical Faculty, Montreal, Que. (m)	375 000	217	...	29	...	14	50	34	110	118	126	138	John W. Scane, M.D., Registrar	Oct. 3	June 20	149
150	Laval University, Medical Faculty, Quebec, Que. (m)	70 000	94	...	13	...	10	17	34	60	60	60	60	E. P. Lachapelle, M.D., Dean	Sept. 15	June 20	150
151	University of Toronto, Medical Faculty, Toronto, Ont. (m)	338 814	572	18	122	3	19	157	31	150	150	150	150	Michael J. Ahern, M.D., Dean	Sept. 27	May 18	151
152	University of Manitoba, Manitoba Medical College, Winnipeg (m)	100.000	109	1	3	0	1	49	29	155	150	150	150	A. Primrose, M.D., Secretary	Sept. 26	May 1	152
														E. S. Popham, M.D., Registrar			

H., Homeopathic; E., Eclectic; Ph.M., Physiomedical; P. Panpathic. * Night schools. † Gives only two years of the medical course. ‡ Total fees for the fifth year are $110.

REFERENCES TO TABLE 1

(a) Cooper Medical College will continue to teach and will graduate those matriculated prior to 1909. After that date all work will be under the charge of the Leland Stanford Junior University Department of Medicine.

(b) These colleges will complete their merger Jan. 1, 1911.

(c) These colleges have been merged, retaining the name of Bennett Medical College.

(d) Population figures given for both Kansas Cities.

(e) This college has been suspended.

(f) Formerly the Western Eclectic College of Medicine and Surgery of Kansas City, Kan.

(g) Has just been reorganized on a non-sectarian basis.

(h) Population figures include St. Paul and Minneapolis.

(i) Tuition fees are less for residents of the state.

(j) Merged with Western Reserve University.

(k) These colleges have been merged with the new title, Cleveland-Pulte Medical College.

(l) Following the suspension of the Epworth College of Medicine, this school has organized a clinical department at Oklahoma City.

(m) Gives a five year course.

(n) The enrollment of students given is for 1908-9; the graduates, those of 1910.

(o) This college had 226 "matriculants and applicants" in 1908-9 according to its printed announcement. From other sources it is learned that only about 80 medical students actually attended throughout the session of 1909-10.

(p) Hamline University still grants degrees to students matriculated prior to the fall of 1909 who could not meet the entrance requirements of the College of Medicine of the University of Minnesota, with which it was merged.

(Continued from page 681)

1. A strict enforcement of all standards and requirements, the college itself to be held responsible for any instances where they are not enforced.

2. A requirement for admission of at least a four-year high school education superimposed on eight years of grammar school work, or the actual equivalent education, this to consist of 14 units as defined by the College Entrance Examining Board and required by the Carnegie Foundation for the Advancement of Teaching (see schedule, page 681).

3. As soon as conditions warrant, the minimum requirement for admission should be enlarged to include at least one year's college work in physics, chemistry and biology and a reading knowledge of at least one modern language, preferably German or French.

4. A requirement that students be in actual attendance in the college within the first week of each annual session and thereafter.

5. That actual attendance at classes be insisted on except for good cause, such as for sickness, and that no credit be given under any circumstances for less than 80 per cent. of attendance on each course.

6. That advanced standing be granted only to students of other acceptable colleges and that in granting advanced standing there shall be no discrimination against the college's full-course student.

7. Careful and intelligent supervision of the entire school by a dean or other executive officer who holds, and has sufficient authority to carry out, fair ideals of medical education as interpreted by modern demands.

8. A good system of records showing conveniently the credentials, attendance, grades and accounts of the students.

9. A fully graded course covering four years of at least 30 weeks each, exclusive of holidays, and at least 30 hours per week of actual work; this course should be clearly set forth in a carefully prepared and printed schedule of lectures and classes.

10. Two years of work consisting largely of laboratory work in thoroughly equipped laboratories in anatomy, histology, embryology, physiology, chemistry (inorganic, organic and physiologic), bacteriology, pathology, pharmacology, therapeutics and clinical diagnosis.

11. Two years of clinical work largely in hospitals and dispensaries, with thorough courses in internal medicine (including physical diagnosis, pediatrics, nervous and mental diseases), surgery (including surgical anatomy and operative surgery on the cadaver), obstetrics, gynecology, laryngology, rhinology, ophthalmology, otology, dermatology, hygiene and medical jurisprudence.

12. At least six expert, thoroughly trained instructors in the laboratory branches, salaried so they may devote their entire time to instruction and to that research without which they cannot well keep up with the rapid progress being made in their subjects. These instructors should rank sufficiently high to have some voice in the conduct of the college. There should also be a sufficient number of assistants in each department to look after the less important details.

13. The medical teaching should be of at least the same degree of excellence as obtains in our recognized liberal arts colleges and technical schools.

14. The members of the faculty, with a few allowable exceptions, should be graduates of institutions recognized as medical colleges and should have had a training in all departments of medicine. They should be appointed because of their ability as teachers and not because they happen to be on the attending staff of some hospital or for other like reasons.

15. The college should own or entirely control a hospital in order that students may come into close and extended contact with patients under the supervision of the attending staff. The hospital should have a sufficiently large number of patients to permit the student to see and study the common variety of surgical and medical cases as well as a fair number in each of the so-called specialties.

16. The college should have easily accessible hospital facilities of not less than 200 patients which can be utilized for clinical teaching (for senior classes of 100 students or less), these patients to represent in fair proportion all departments of medicine.

17. The college should have additional hospital facilities for children's diseases, contagious diseases and nervous and mental diseases.

18. Facilities for at least five maternity cases for each senior student, who should have actual charge of these cases under the supervision of the attending physician.

19. Facilities for at least 30 autopsies during each college session (for senior classes of 100 students or less).

20. A dispensary, or out-patient department, under the control of the college, the attendance to be a daily average of 60 cases (for senior classes of 100 students or less), the patients to be carefully classified, good histories and records of the patients to be kept and the material to be well used.

21. The college should have a working medical library to include the more modern text and reference books and 10 or more leading medical periodicals; the library room to be easily accessible to students during all or the greater part of the day; to have suitable tables and chairs and to have an attendant in charge.

22. A working medical museum having its various anatomic, embryologic, pathologic and other specimens carefully prepared, labeled and indexed so that any specimen may be easily found and employed for teaching purposes.

23. A supply of such useful auxiliary apparatus as a stereopticon, a reflectoscope, carefully prepared charts, embryologic or other models, manikins, dummies for use in bandaging, a Roentgen ray or other apparatus now so generally used in medical teaching.

24. The colleges should show evidences of reasonably modern methods in all departments and evidences that the equipment and facilities are being intelligently used in the training of medical students.

25. A clear statement of the college's requirements for admission, tuition, time of attendance on the classes, sessions and graduation should be clearly set forth, together with complete lists of its matriculants and latest graduating class in regular annual catalogues or announcements.

Definitions of a Medical College* and a Medical School†

"An institution to be ranked as a medical college must have at least six (6) professors giving their entire time to medical work, a graded course of four full years of college grade in medicine, and must require for admission not less than the usual four years of academic or high-school preparation, or its equivalent, in addition to the preacademic or grammar school studies."

By a medical school as differentiated from a medical college is meant a part of a university requiring for admission the equivalent of two years of collegiate work and which offers instruction of not less than two years' duration, leading to the degree of Doctor of Medicine.

* This definition of a college is based on that given in the revised ordinances of the State of New York and which was also adopted by the Carnegie Foundation for the Advancement of Teaching as their standard.

† Based on the definition of the term "school" adopted in 1909 by the Association of American Universities.

THE ASSOCIATION OF AMERICAN MEDICAL COLLEGES

The requirements for admission to and graduation from colleges holding membership are as follows:

Preliminary Education: (*a*) A bachelor's degree from an approved college or university. (*b*) A diploma from an accredited high school, normal school or academy requiring for admission evidence of the completion of an eight-year course in primary and intermediate grades, and for graduation not less than four years of study embracing not less than two years (4 points) of Latin or four years of either high school French or German, provided an examination is passed in the elements of Latin grammar, two years (4 points) of mathematics, two years (4 points) of English, one year (2 points) of history, one year (2 points) of physics, and six years (12 points) of further credit in language literature, history or science. (*c*) An examination in the following branches totaling 30 points: A. Required (16 points): Mathematics (4 points), English (4 points), History (2 points), Latin (4 points), Physics (2 points).

B. Elective (14 points): English language and literature, 4 points; language, German, French, Spanish or Greek, in each not

(e) This college has been suspended.

Number.	NAME OF COLLEGE	1 Alabama 633	2 Arizona 5	3 Arkansas 392	4 California 359	5 Colorado 157	6 Connecticut 271	7 Delaware 39	8 Dist. of Columbia 116	9 Florida 143	10 Georgia 702	11 Idaho 91	12 Illinois 1959	13 Indiana 571	14 Iowa 636	15 Kans. s 412	16 Kentucky 423	17 Louisiana 376	18 Maine 153	19 Maryland 306	20 Massachusetts 809	Number.
1	Birmingham Medical College, Birmingham	176	....	1	....	....	....	....	....	6	4	....	....	....	....	....	1	....	....	....	....	1
2	University of Alabama, Medical Dept., Mobile	168	1	....	....	....	....	....	....	1	....	....	....	....	....	....	....	1	....	....	....	2
3	College of Physicians and Surgeons, Little Rock	1	1	67	....	....	....	....	....	....	2	....	5	2	....	2	2	4	....	....	....	3
4	University of Arkansas, Med. Dept., Little Rock	....	....	141	....	....	....	....	....	....	....	....	1	2	....	1	1	3	....	....	....	4
5	College of Phys. and Surg., San Francisco	....	....	....	12	1	....	....	....	....	....	....	....	....	3	1	....	....	....	....	....	5
6	Hahnemann Med. Coll. of the Pacific.—H.	....	....	....	33	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	6
7	Leland Stanford Junior Univ., Dept. of Med.	....	....	....	14	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	7
8	Cooper Medical College, San Francisco	....	....	....	71	....	....	....	....	....	....	....	....	1	1	....	....	....	....	....	....	8
9	Univ. of California, Med. Dept., San Francisco	....	....	....	47	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	9
10	Univ. of California, Med. Dept., Los Angeles	....	....	....	39	2	1	....	....	....	....	....	2	1	1	1	....	....	....	....	....	10
11	California Eclectic Med. Coll., Los Angeles.—E.	....	....	....	19	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	11
12	College of Physicians and Surgeons, Los Angeles	....	....	....	11	....	....	....	....	....	....	....	5	1	3	2	1	1	....	....	4	12
13	Oakland College of Med. and Surgery, Oakland	....	....	....	19	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	13
14	College of Medical Evangelists, Loma Linda	....	....	....	6	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	14
15	Denver and Gross College of Medicine, Denver	....	....	1	2	70	....	....	....	....	....	....	3	1	7	3	1	2	....	....	....	15
16	University of Colorado, School of Med., Boulder	1	....	....	1	39	....	....	....	1	....	3	2	1	5	2	....	....	....	....	....	16
17	Yale Medical School, New Haven	1	....	....	....	....	87	....	....	....	....	....	....	....	....	1	....	....	....	....	....	5	17
18	George Washington University, Dept. of Med.	....	....	....	3	....	1	....	33	....	....	....	2	....	1	2	....	....	....	4	3	18
19	Georgetown Univ., School of Med., Washington	1	....	....	3	....	4	....	36	....	....	....	1	....	....	....	2	....	....	6	10	19
20	Howard University, Med. Dept., Washington	3	....	1	....	....	2	3	29	7	7	....	3	....	....	....	2	2	....	12	2	20
21	Atlanta College of Phys. and Surg., Atlanta	37	....	....	1	....	1	1	....	30	204	....	....	....	....	....	1	1	....	....	....	21
22	Atlanta School of Medicine, Atlanta	15	....	....	....	....	....	....	....	16	150	....	....	....	1	....	....	2	....	....	1	22
23	Georgia College of Eclectic Med. and Surg.—E.	....	....	....	....	....	....	....	....	....	90	....	....	....	....	....	....	....	....	....	....	23
24	Hospital Medical College, Atlanta.—E.*	....	....	2	....	....	....	....	....	5	29	....	....	....	....	....	....	....	....	....	....	24
25	Medical College of Georgia, Augusta	....	....	....	....	....	1	....	....	3	91	....	....	....	....	....	....	....	....	....	....	25
26	American Medical Missionary College, Chicago	1	....	....	....	....	....	....	....	....	....	....	7	3	3	1	1	....	....	....	....	26
27	Bennett Medical College, Chicago	....	....	1	....	1	1	....	....	1	....	....	129	8	10	3	2	....	....	....	1	27
28	Chicago College of Medicine and Surgery	5	....	2	3	....	3	....	....	2	....	....	251	50	22	13	5	1	....	1	4	28
29	College of Physicians and Surgeons, Chicago	1	....	....	....	3	....	....	1	1	....	1	306	20	18	1	1	1	....	....	....	29
30	College of Medicine and Surgery, Chicago.—Ph.M.	....	....	....	....	....	....	....	....	....	....	....	33	2	2	....	1	....	....	....	1	30
31	Hahnemann Med. Coll. and Hosp., Chicago.—H.	....	....	1	2	....	....	....	....	1	....	1	64	7	21	3	....	....	....	....	3	31
32	Hering Medical College, Chicago.—H.	....	....	....	....	1	....	....	1	....	....	....	23	2	1	....	2	....	....	....	....	32
33	Illinois Medical College, Chicago	1	....	1	....	....	....	....	....	....	....	....	28	5	....	....	....	1	....	1	....	33
34	Jenner Medical College, Chicago	1	....	1	3	....	....	....	1	....	1	....	165	2	2	....	2	....	....	....	1	34
35	Northwestern University Medical School, Chicago	....	....	1	3	7	....	....	....	....	....	....	280	44	66	15	....	....	....	....	1	35
36	Reliance Medical College	....	....	....	....	....	....	....	....	....	....	....	71	....	....	....	....	....	....	....	....	36
37	Rush Medical College, Chicago	2	....	4	4	3	....	....	....	1	1	2	174	23	39	25	3	1	....	....	....	37
38	Indiana University, School of Med., Indianapolis	....	....	....	....	....	1	....	....	....	1	....	6	231	1	....	....	....	....	....	....	38
39	Drake University, College of Med., Des Moines	....	....	....	1	2	....	....	....	....	....	1	3	....	73	3	....	....	....	....	....	39
40	State Univ. of Iowa, Coll. of Med., Iowa City	....	....	....	....	....	....	....	....	....	....	....	10	....	161	....	1	....	1	....	....	40
41	State Univ. of Iowa, Coll. of Homeo. Med.—H.	....	....	....	....	....	....	....	....	....	....	1	....	....	30	....	....	....	....	....	....	41
42	Kansas Medical College, Topeka	....	....	1	....	....	....	....	....	....	....	....	....	....	....	60	....	....	....	....	....	42
43	Univ. of Kansas, School of Med., Kansas City	....	....	....	....	....	....	....	....	....	....	....	....	....	....	80	....	....	....	....	....	43
44	Louisville National Medical College, Louisville	2	....	....	....	....	....	....	....	1	1	....	....	4	....	....	19	....	....	....	....	44
45	Southwestern Homeopathic Coll., Louisville.—H.	....	....	....	....	....	....	....	....	....	....	....	....	3	....	....	8	....	....	....	....	45
46	University of Louisville, Med. Dept., Louisville	7	....	14	2	....	1	....	....	5	5	....	27	71	9	5	240	15	1	....	2	46
47	Flint Medical College, New Orleans	....	....	1	....	....	....	....	....	....	2	....	....	....	....	....	....	10	....	....	....	47
48	Tulane University Med. Dept., New Orleans	51	....	9	....	....	2	....	....	7	15	....	....	....	....	....	1	192	....	....	1	48
49	Medical School of Maine, Portland	....	....	....	1	....	3	....	....	....	....	....	....	....	....	....	....	....	60	....	3	49
50	Atlantic Medical College, Baltimore	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	8	....	50
51	Baltimore Medical College, Baltimore	2	....	1	....	....	22	....	2	1	2	....	....	....	....	....	....	1	5	28	29	51
52	College of Physicians and Surgeons, Baltimore	....	....	1	....	....	25	2	....	1	4	....	....	....	....	....	....	....	1	36	26	52
53	Johns Hopkins Univ., Med. Dept., Baltimore.†	7	....	4	11	1	18	1	3	2	10	....	12	8	4	4	9	4	4	51	6	53
54	Maryland Medical College, Baltimore	2	....	....	....	....	2	2	1	....	1	....	....	1	....	....	....	1	....	18	2	54
55	Univ. of Maryland, School of Med. Baltimore	....	....	....	....	....	4	7	1	3	7	....	2	1	....	2	....	....	1	116	2	55
56	Woman's Medical College of Baltimore.†	....	....	....	....	....	1	....	....	....	....	....	1	....	1	....	....	....	....	3	1	56
57	Boston University, School of Medicine.—H.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	3	....	56	57
58	College of Physicians and Surgeons, Boston	....	....	....	....	....	2	....	....	1	1	....	....	....	....	....	....	....	6	....	41	58
59	Harvard Medical School, Boston	....	....	1	10	5	3	....	1	....	....	....	5	3	4	1	2	....	20	....	151	59
60	Tufts College Medical School, Boston	....	....	....	....	....	10	....	....	....	....	....	1	....	1	....	....	....	20	....	340	60
61	Detroit College of Medicine, Detroit	....	....	....	....	....	....	....	....	....	....	....	2	1	....	....	....	....	....	....	....	61
62	Detroit Homeopathic College, Detroit.—H.†	....	....	....	....	....	....	....	....	....	....	....	2	....	....	....	....	....	....	....	....	62
63	Univ. of Michigan, Dept. of Med. and Surg.	1	....	....	4	1	1	....	1	....	1	1	10	10	5	....	4	....	1	....	3	63
64	Univ. of Michigan, Homeo. Coll., Ann Arbor.—H.	....	....	....	....	....	....	....	1	....	....	....	1	1	2	1	....	1	1	2	1	64
65	Univ. of Minnesota, Coll. of Med. and Surg.	....	....	....	....	....	....	....	....	....	....	....	2	1	2	1	....	....	....	....	....	65
66	University of Mississippi, Med. Dept., Oxford	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	1	....	....	....	66
67	Mississippi Medical College, Meridian	4	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	1	....	1	....	67
68	University of Missouri, Med. Dept., Columbia	....	....	....	....	....	....	....	....	....	....	....	....	....	2	....	....	....	....	....	1	68
69	Kansas City Hahnemann Med. Coll.—H.	....	....	....	....	1	....	....	....	....	....	....	2	2	2	25	....	....	....	....	....	69
70	University Medical College, Kansas City	....	....	3	....	1	....	....	....	....	....	....	....	1	3	80	....	....	....	....	....	70
71	Eclectic Medical University, Kansas City.—E.†	....	....	1	....	1	....	....	....	....	....	....	1	....	1	8	....	....	....	....	....	71
72	Ensworth Medical College, St. Joseph	....	....	....	....	....	....	....	....	....	....	1	....	....	5	9	....	....	....	....	....	72
73	American Medical College, St. Louis.—E.	....	....	8	....	....	....	....	....	....	....	....	4	....	....	1	....	....	....	....	....	73
74	Barnes Medical College, St. Louis	2	....	3	....	1	....	....	....	....	....	....	52	3	9	4	4	....	....	....	....	74
75	Hippocratean College of Medicine, St. Louis	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	75
76	St. Louis University, School of Medicine	1	1	4	....	2	....	....	....	....	2	....	64	5	14	7	1	2	....	....	....	76
77	St. Louis College of Physicians and Surgeons.*	2	....	6	1	....	....	....	....	....	....	....	93	3	12	3	4	1	....	....	....	77
78	Washington University, Med. Dept., St. Louis	1	....	4	2	1	....	....	....	....	1	1	54	2	7	5	....	....	....	....	....	78
79	Creighton Medical College, Omaha	....	....	....	1	1	1	....	....	....	....	....	1	....	43	3	....	....	....	....	1	79
80	University of Nebraska, Coll. of Med.	....	....	....	....	....	....	....	....	....	....	....	....	....	8	1	....	....	....	....	....	80
81	Lincoln Medical College, Lincoln.—E.	....	....	....	....	....	....	....	....	....	....	....	....	1	1	1	....	....	....	....	....	81
82	Dartmouth Medical School, Hanover	....	....	....	....	....	4	....	....	....	....	....	....	1	....	....	....	....	2	....	14	82
83	Albany Medical College, Albany	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	11	83
84	Columbia Univ., Coll. of Phys. and Surg.	2	....	....	....	1	12	....	....	....	1	....	5	....	1	2	2	....	2	....	5	84
85	Cornell Univ. Medical College, New York City	....	....	....	1	....	....	....	....	....	....	....	....	....	1	....	....	1	3	1	4	85
86	Eclectic Med. Coll. of the City of New York.—E.†	....	....	....	....	....	2	....	....	....	....	....	....	....	....	....	....	....	....	....	....	86
87	Fordham Univ. School of Med., New York City	....	....	....	1	....	1	1	....	....	....	....	....	....	....	....	....	....	....	1	2	87
88	Long Island College Hospital, New York City	....	....	....	....	....	4	1	....	....	....	....	....	....	....	....	....	....	....	....	1	88
89	New York Med. Coll. and Hosp. for Women.—H.	....	....	....	....	....	2	....	....	....	....	....	....	....	....	....	....	....	1	....	2	89
90	New York Homeo. Med. Coll. and Hosp.—H.†	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	90
91	Univ. and Bellevue Hosp. Med. Coll., New York	....	....	....	3	1	9	....	....	2	....	....	2	....	....	....	1	....	....	....	6	91
92	Syracuse University, Coll. of Med., Syracuse	....	....	....	1	....	....	....	....	....	....	....	....	....	1	1	....	....	....	....	....	92
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	

* Figures for 1908-9. † Total exact; distribution based on that of 1908-9. H., Homeopathic; E., Eclectic; Ph.M., Physiomedical; P., Panpathic.

Number.	21 Michigan....448	22 Minnesota....338	23 Mississippi....561	24 Missouri....807	25 Montana....37	26 Nebraska....301	27 Nevada....6	28 New Hampshire....97	29 New Jersey....469	30 New Mexico....11	31 New York....2130	32 North Carolina....493	33 North Dakota....97	34 Ohio....902	35 Oklahoma....192	36 Oregon....130	37 Pennsylvania....1990	38 Rhode Island....101	39 South Carolina....413	40 South Dakota....85	41 Tennessee....569	42 Texas....719	43 Utah....88	44 Vermont....102	45 Virginia....465	46 Washington....80	47 West Virginia....266	48 Wisconsin....519	49 Wyoming....11	50 Philippine Is., Etc....54	51 Foreign....563	52 Totals....21,531	Number.
1	....	....	11	....	....	....	....	....	....	....	....	1	....	....	1	....	....	....	2	....	1	2	....	....	....	....	....	....	....	....	3	209	1
2	....	....	7	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	179	2
3	....	....	3	3	....	....	....	....	....	....	....	....	....	1	2	....	1	....	....	....	3	3	....	....	....	....	....	....	....	....	....	....	3
4	....	....	....	1	....	....	....	....	....	....	1	....	....	....	14	....	1	1	....	....	1	3	....	....	....	....	....	....	....	....	2	104	4
5	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	2	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	171	5
6	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	7	59	6
7	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	34	7
8	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	15	8
9	....	....	....	....	....	....	1	....	....	....	1	....	....	1	....	1	1	....	....	....	....	....	....	....	....	....	....	....	....	1	2	80	9
10	....	....	....	3	....	1	....	....	....	1	1	....	....	1	....	2	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	52	10
11	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	55	11
12	1	3	....	7	....	3	....	1	1	....	3	....	1	2	....	1	3	....	....	....	....	1	....	....	....	....	....	....	....	....	....	22	12
13	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	1	4	....	....	9	69	13
14	1	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	20	14
15	3	1	....	....	2	2	....	1	....	....	1	....	....	5	....	....	2	....	....	1	....	2	1	....	3	....	1	....	1	....	1	10	15
16	1	2	....	....	....	2	....	....	....	....	2	....	....	5	....	....	1	....	....	....	....	2	....	1	....	....	....	1	2	....	1	117	16
17	....	....	....	1	....	....	....	....	2	....	11	....	....	3	....	....	4	2	....	1	....	....	....	3	....	....	....	....	....	....	3	77	17
18	1	1	1	....	....	2	....	1	1	....	5	6	1	4	2	....	6	....	2	....	3	4	2	2	9	....	1	....	....	....	3	124	18
19	....	....	1	....	....	....	....	....	6	....	6	1	....	2	1	....	13	4	....	....	....	1	....	....	10	1	2	1	....	4	6	109	19
20	....	....	2	3	1	....	....	....	4	....	8	6	1	7	....	....	9	3	8	....	5	6	....	....	35	....	1	....	....	....	1	117	20
21	....	....	5	....	....	....	....	....	....	....	3	7	....	1	2	....	....	....	21	....	1	5	1	....	....	1	....	....	....	....	38	210	21
22	....	1	9	1	....	....	....	....	1	....	1	10	....	1	....	....	2	....	10	....	2	2	....	....	....	....	....	....	....	....	1	334	22
23	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	2	227	23
24	....	....	....	....	....	....	....	....	....	....	....	1	....	....	1	....	....	....	2	....	1	2	....	....	....	....	....	....	....	....	....	90	24
25	....	1	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	15	....	....	1	....	....	....	....	....	....	....	....	....	43	25
26	9	....	1	1	....	....	....	....	1	....	3	....	....	6	....	....	2	....	....	....	2	....	....	....	1	....	....	1	....	....	....	113	26
27	7	3	2	3	....	....	....	....	....	....	7	2	2	3	....	....	8	....	....	6	....	3	....	....	....	1	....	....	....	....	24	67	27
28	16	16	3	20	....	4	....	....	4	....	26	1	7	18	1	1	38	....	1	4	2	8	3	....	....	1	....	16	....	11	231	28
29	15	19	2	9	2	11	....	....	....	....	4	....	11	9	....	1	1	....	....	18	1	4	5	....	1	8	2	30	....	8	11	526	29
30	1	....	....	2	....	....	....	....	....	....	4	....	....	3	....	....	....	....	....	....	....	3	1	....	....	....	....	1	....	....	3	57	30
31	5	4	....	....	....	....	....	....	....	....	2	....	1	4	....	....	2	1	....	....	....	....	....	....	1	1	1	3	....	....	3	131	31
32	1	....	....	....	....	....	....	....	....	....	3	....	....	....	....	....	1	....	....	....	....	1	....	....	....	....	....	1	1	....	4	42	32
33	2	....	3	....	....	....	....	....	....	....	2	1	....	1	2	....	2	....	....	....	....	....	....	....	1	....	....	2	....	....	2	55	33
34	1	4	....	1	....	....	....	....	1	1	3	1	....	2	1	....	2	....	....	....	2	1	....	1	....	....	3	....	....	2	205	34
35	12	34	2	8	5	13	....	....	....	1	2	....	7	15	1	5	1	....	....	14	3	....	15	....	....	5	....	61	1	4	11	637	35
36	....	3	....	2	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	2	....	....	....	....	....	....	....	....	....	2	80	36
37	9	9	2	19	1	15	....	....	....	....	5	1	8	20	4	8	1	2	....	5	4	4	8	1	3	8	1	32	....	1	15	468	37
38	1	....	....	....	1	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	3	....	....	....	....	....	....	1	....	....	....	1	248	38
39	....	3	....	7	1	2	....	....	....	....	1	....	1	1	....	....	....	....	....	2	....	1	....	....	....	2	....	....	....	....	4	108	39
40	....	2	....	1	2	2	....	....	1	....	....	....	....	....	....	1	....	....	....	5	....	....	....	....	....	1	....	1	....	....	1	190	40
41	....	....	....	....	....	2	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	35	41
42	....	....	....	1	....	1	....	....	....	....	....	....	1	1	....	....	1	....	....	....	....	1	....	....	....	....	....	....	....	....	....	67	42
43	....	....	....	8	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	89	43
44	....	....	2	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	2	31	44
45	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	1	13	45
46	3	9	18	18	1	1	....	....	5	1	6	4	1	4	6	3	13	....	1	....	19	26	....	1	10	1	64	3	....	....	2	624	46
47	....	....	1	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	3	....	....	....	....	....	....	....	....	1	19	47
48	....	....	73	....	....	....	....	....	....	....	....	6	....	....	6	....	....	....	5	....	5	39	....	....	1	....	....	....	....	....	4	417	48
49	....	....	....	....	....	....	....	3	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	3	74	49
50	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	5	....	....	....	....	....	....	....	4	....	....	....	....	....	1	19	50
51	....	1	1	....	....	....	....	8	14	....	35	4	....	1	....	....	46	8	4	....	1	....	....	2	15	....	12	....	....	....	25	270	51
52	1	....	....	....	2	....	....	....	21	....	15	6	....	10	....	....	38	13	1	....	1	1	5	....	4	....	51	....	....	....	18	283	52
53	2	1	1	9	1	1	....	3	6	....	35	9	....	14	....	3	32	1	7	....	3	10	....	....	10	8	5	8	1	....	5	334	53
54	....	....	....	....	....	....	....	1	7	....	8	3	....	1	....	....	17	....	....	....	2	....	....	....	8	1	21	....	....	....	13	112	54
55	....	....	....	1	....	....	....	2	16	....	11	31	....	1	1	....	26	2	23	....	1	....	....	1	18	....	4	1	....	5	19	369	55
56	....	....	....	....	....	....	....	....	1	....	2	1	....	....	....	....	....	....	1	....	....	....	....	....	1	....	1	....	....	2	1	17	56
57	....	....	....	....	....	1	....	....	....	....	1	....	....	2	....	....	1	2	....	....	....	....	....	4	....	....	....	....	....	....	9	79	57
58	....	....	....	....	....	....	....	2	....	....	5	....	....	....	....	....	1	6	1	....	....	....	....	....	1	....	....	....	....	....	13	80	58
59	1	....	....	2	1	2	....	6	3	....	9	2	....	7	....	2	4	12	2	....	1	....	....	1	....	4	....	....	2	....	12	279	59
60	....	....	....	....	....	....	....	17	....	1	5	....	....	1	....	....	1	21	1	....	....	....	....	1	....	....	....	....	....	2	6	428	60
61	118	1	....	....	....	....	....	....	....	....	1	....	....	4	....	....	3	....	....	....	....	....	....	....	....	....	....	....	....	....	22	152	61
62	22	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	26	62
63	152	2	....	4	4	....	1	....	1	....	27	1	1	39	....	3	11	2	2	6	1	....	....	2	....	5	....	2	....	6	315	63
64	31	1	....	....	....	....	....	....	....	....	17	....	....	4	....	1	5	....	....	....	1	....	....	....	....	....	....	2	....	....	1	74	64
65	....	151	....	1	....	....	....	....	....	....	1	....	7	....	....	....	....	....	2	....	1	....	....	1	3	....	3	....	....	....	....	176	65
66	....	....	48	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	50	66
67	....	....	88	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	96	67
68	....	....	....	23	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	1	29	68
69	1	....	....	18	....	....	....	....	....	....	2	....	....	1	1	....	....	....	....	....	....	....	....	....	....	1	1	....	....	....	1	58	69
70	....	....	....	79	2	....	....	....	....	1	....	....	....	1	9	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	5	186	70
71	....	....	....	5	....	1	....	....	....	....	....	....	....	1	2	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	21	71
72	....	1	....	50	....	....	....	....	....	....	....	....	....	1	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	68	72
73	....	....	....	25	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	39	73
74	2	....	....	86	....	1	....	....	....	....	....	....	....	....	6	....	....	....	....	....	....	4	....	....	....	1	4	....	....	1	1	184	74
75	....	....	....	31	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	31	75
76	3	3	1	112	3	2	....	....	....	....	2	....	....	8	8	1	....	....	....	....	....	1	2	....	....	1	....	7	....	....	4	261	76
77	....	....	....	81	1	2	2	....	....	....	2	....	1	....	8	....	....	....	....	....	....	10	....	....	....	....	....	1	....	....	1	234	77
78	....	....	....	115	1	2	1	....	1	....	1	....	....	....	....	....	1	....	....	....	1	....	....	....	....	....	....	1	....	....	2	205	78
79	3	6	....	3	....	112	....	....	....	....	2	....	1	....	....	1	2	....	1	7	....	....	....	1	....	....	1	....	3	....	....	194	79
80	....	....	....	....	....	64	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	2	....	76	80
81	....	....	....	....	....	49	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	58	81
82	....	....	....	....	1	....	....	27	3	....	....	....	....	1	....	....	....	....	....	2	1	1	....	4	....	....	....	....	....	....	....	57	82
83	....	....	....	....	....	....	....	1	3	....	175	....	....	....	....	....	1	1	1	....	....	....	....	1	....	....	....	....	....	1	1	196	83
84	....	1	2	4	1	....	....	3	45	....	227	2	....	1	2	3	8	2	5	1	....	1	1	2	1	2	....	1	....	1	11	360	84
85	....	....	....	....	1	....	....	....	17	....	128	1	....	1	....	....	3	....	....	1	....	....	....	....	....	....	....	....	....	1	....	164	85
86	....	....	....	....	....	....	....	....	10	....	78	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	91	86
87	....	....	....	....	....	....	....	....	3	....	46	....	....	....	....	....	2	....	....	....	....	....	....	....	....	....	....	....	....	....	18	75	87
88	....	....	....	....	....	....	....	....	29	....	331	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	2	368	88
89	....	....	....	....	....	....	....	....	33	....	75	....	1	....	....	....	7	....	....	....	....	....	....	....	....	....	....	....	....	....	3	125	89
90	....	....	....	....	....	....	....	....	....	....	24	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	24	90
91	....	....	1	....	....	....	....	1	72	....	357	....	....	3	....	....	3	5	....	....	1	....	....	1	1	1	....	....	....	1	3	474	91
92	....	....	....	....	....	....	....	....	3	....	121	....	....	2	....	....	1	....	....	....	....	....	....	1	....	....	....	1	....	5	3	140	92
	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	

Number.	NAME OF COLLEGE	1 Alabama....683	2 Arizona....5	3 Arkansas....392	4 California....250	5 Colorado....157	6 Connecticut....271	7 Delaware....39	8 Dist. of Columbia..116	9 Florida....143	10 Georgia....702	11 Idaho....21	12 Illinois....1959	13 Indiana....571	14 Iowa....636	15 Kansas....412	16 Kentucky....423	17 Louisiana....276	18 Maine....153	19 Maryland....506	20 Massachusetts....809	Number.
93	University of Buffalo, Medical Dept., Buffalo	....	....	....	....	....	1	....	....	....	....	....	....	1	....	....	....	....	....	....	....	93
94	Leonard Medical School, Raleigh	9	....	....	....	....	....	....	2	6	4	....	....	....	....	....	....	1	....	2	1	94
95	University of North Carolina, Med. Dept.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	95
96	North Carolina Medical College, Charlotte	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	96
97	Wake Forest School of Medicine, Wake Forest	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	97
98	University of North Dakota, Med. Dept.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	98
99	Cleveland College of Phys. and Surg., Cleveland	....	....	....	....	1	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	99
100	Cleveland Homeo. Med. College, Cleveland.—H.†	....	....	....	....	....	....	....	....	....	....	....	1	1	....	....	....	....	....	....	....	100
101	Western Reserve Univ., Med. Dept., Cleveland	....	....	....	....	....	....	....	....	....	....	....	1	4	2	....	....	....	....	....	....	101
102	Eclectic Medical College, Cincinnati.—E	....	....	1	....	....	....	....	....	....	2	....	6	7	....	2	10	....	....	....	....	102
103	Ohio-Miami Med. Coll. of the Univ. of Cincinnati	....	....	....	....	....	....	....	....	....	....	....	....	10	....	1	21	....	....	....	....	103
104	Pulte Medical College, Cincinnati.—H	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	104
105	Starling-Ohio Medical College, Columbus	....	....	....	....	1	....	....	....	....	....	....	2	2	2	....	1	....	....	....	1	105
106	Toledo Medical College, Toledo	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	106
107	Epworth College of Medicine, Oklahoma City	....	....	3	....	....	....	....	....	....	....	....	....	....	....	2	....	....	....	....	....	107
108	University of Oklahoma, School of Med., Norman	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	108
109	University of Oregon, Med. Dept., Portland	....	....	....	1	....	....	....	....	....	....	2	1	....	2	....	....	....	....	....	....	109
110	Willamette University, Med. Dept., Salem	....	....	....	2	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	110
111	Hahnemann Med. Coll. and Hosp., Phila.—H	....	....	....	1	....	2	1	....	....	....	....	1	....	4	....	2	....	2	2	....	111
112	Jefferson Medical College, Philadelphia	5	1	4	5	....	9	9	....	1	4	....	4	8	7	5	6	....	2	1	7	112
113	Medico-Chirurgical College of Philadelphia	....	....	....	1	....	9	2	....	....	....	1	1	....	....	1	....	1	....	3	1	113
114	Temple University, Med. Dept., Philadelphia	....	....	....	....	....	1	1	....	....	....	....	1	....	....	1	....	....	....	1	2	114
115	University of Pennsylvania, Dept. of Med.	2	1	3	2	3	2	6	....	2	2	....	3	4	4	2	1	2	3	2	9	115
116	Woman's Med. Coll. of Pennsylvania, Phila.	....	....	1	3	2	2	1	1	....	1	....	....	1	....	2	....	2	....	3	6	116
117	University of Pittsburg, Med. Dept., Pittsburg	....	....	....	1	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	1	117
118	Medical College of South Carolina, Charleston	....	....	....	....	....	....	....	....	10	3	....	....	....	....	....	....	....	....	....	1	118
119	Univ. of South Dakota, Coll. of Med., Vermilion	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	119
120	Knoxville Medical College, Knoxville	1	....	....	....	....	....	....	....	1	1	....	....	....	....	1	1	....	....	....	1	120
121	Lincoln Memorial Univ., Med. Dept., Knoxville	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	8	....	....	....	....	121
122	Meharry Medical College, Nashville	23	....	12	....	....	....	....	....	3	32	....	2	2	....	5	7	7	....	....	....	122
123	Univ. of Nashville and Tennessee, Dept. of Med.	18	....	11	....	....	....	....	....	4	2	....	3	....	....	....	10	15	....	....	....	123
124	Vanderbilt University, Med. Dept., Nashville	29	....	7	5	....	....	....	....	5	3	....	2	1	....	....	39	15	....	....	....	124
125	College of Phys. and Surg., Memphis	....	....	14	....	1	....	....	....	....	....	....	....	....	1	....	....	2	....	....	....	125
126	Memphis Hospital Medical College, Memphis	9	....	45	....	1	....	....	....	3	1	....	3	....	....	....	3	7	....	....	....	126
127	Univ. of West Tennessee, Med. Dept., Memphis	....	....	4	....	....	....	....	....	1	1	....	....	....	....	....	1	3	....	1	....	127
128	Chattanooga Medical College, Chattanooga	30	....	....	2	....	....	....	....	7	8	....	1	1	....	....	....	....	....	....	1	128
129	Fort Worth University, Med. Dept., Fort Worth.†	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	129
130	University of Texas, Dept. of Med., Galveston	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	130
131	Baylor University, College of Medicine, Dallas	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	131
132	Southwestern University Medical College, Dallas	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	132
133	Univ. of Utah, Dept. of Med., Salt Lake City	....	....	....	....	....	....	....	....	....	....	4	....	....	....	....	....	....	....	....	....	133
134	Univ. of Vermont, Coll. of Med., Burlington	....	....	....	....	....	11	....	....	....	....	....	....	....	....	1	....	....	13	....	27	134
135	Medical College of Virginia, Richmond	....	....	....	1	....	....	....	....	1	....	....	....	....	....	1	....	....	....	2	1	135
136	University College of Medicine, Richmond	1	....	....	....	....	....	....	....	....	2	....	....	....	....	....	1	....	....	....	....	136
137	Univ. of Virginia, Dept. of Med., Charlottesville	7	....	2	....	....	....	1	2	1	3	....	....	....	....	....	1	....	....	....	2	137
138	West Virginia Univ., Coll. of Med., Morgantown	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	138
139	Marquette University, Med. Dept., Milwaukee	....	....	....	....	1	....	....	....	....	....	....	3	....	3	....	1	....	....	....	....	139
140	Wisconsin Coll. of Phys. and Surg., Milwaukee	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	140
141	University of Wisconsin, Coll. of Med., Madison	....	....	....	....	....	....	....	....	....	....	....	5	....	1	....	....	....	....	....	....	141
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	

* Figures for 1908-9. † Total exact; distribution based on that of 1908-9. H., Homeopathic; E., Eclectic; Ph.M., Physiomedical; P., Panpathic.

(*Continued from page 685*)

less than 2 points; solid geometry and trigonometry (½ year each), 2 points; biology (one year) or botany and zoology (½ year each), 2 points; chemistry (1 year), 2 points; physical geography and geology (½ year each), 1 point; physiology and hygiene (½ year each), 1 point; astronomy (½ year), 1 point; drawing (½ year), 1 point. One point in any subject in a high school or academic course demands not less than five periods per week of forty-five minutes each for eighteen weeks. (*d*) Certificates from reputable instructors recognized by any state board of medical examiners duly authorized by law or by the superintendents of public instruction in states having no board of examination, may be accepted in lieu of any part of this examination. (*e*) This examination must be conducted by or under the authority of the board of examiners or of the superintendent of public instruction of the city or state in which the college is located as provided for in subsection (*d*). In no case shall it be conducted by any person connected with the faculty, medical or otherwise, of the institution to which the student is seeking admission.

A student may be allowed to enter on his medical work conditioned in not more than six points, and these conditions must be removed by satisfactory examination before he is allowed to enter on the second year of his medical course.

Advanced Standing: Colleges in membership in this Association may honor the official credentials presented by students from other colleges having the standard requirements maintained by members of this Association, excepting for the fourth year of their course, but no member shall admit a student to advanced standing without first communicating with the college from which such student desires to withdraw, and receiving from the dean of such college a direct written communication certifying to the applicant's professional and moral qualifications, and to the exact work he had done in said college.

No time credit shall be given to holders of a Bachelor's degree, but subject credit can be given on satisfactory examination. Four years of residence in a medical college shall be required of all candidates for the degree of doctor of medicine.

CURRICULUM

	No. of Hours of Lectures.	Hours of Laboratory.	Hours of Clinics.	Total.
Histology	30	60	..	90
Embryology	30	60	..	90
Osteology	30	..	..	30
Anatomy	190	230	..	420
Physiology	180	120	..	300
Chemistry and Toxicology	100	200	..	300
Materia Medica	40	20	..	60
Pharmacology	40	20	..	60
Therapeutics	90	..	..	90
Bacteriology	40	100	..	140
Pathology	100	140	..	240
Medical Zoology, Postmortem Work and Clinical Microscopy	30	60	..	90
Physical Diagnosis	20	..	80	100
Practice of Medicine	180	..	360	540
Surgery	180	..	360	540
Obstetrics	100	..	60	160
Gynecology	50	..	110	160
Pediatrics	40	..	60	100
Eye and Ear	30	..	30	60
Nose and Throat	30	..	30	60
Mental and Nervous Diseases	60	..	60	120
Electro-Therapeutics	20	..	40	60
Genito-Urinary Diseases	30	..	30	60
Dermatology and Syphilis	20	..	20	40
Hygiene and Public Health	30	..	..	30
Dietetics	30	..	..	30
Medical Jurisprudence	30	..	..	30
	1,750	1,010	1,240	4,000

(*Continued on page 689*)

Number.	21 Michigan....448	22 Minnesota....398	23 Mississippi....567	24 Missouri....807	25 Montana....37	26 Nebraska....301	27 Nevada....6	28 New Hampshire....97	29 New Jersey....469	30 New Mexico....11	31 New York....2120	32 North Carolina....493	33 North Dakota....97	34 Ohio....902	35 Oklahoma....192	36 Oregon....130	37 Pennsylvania....1990	38 Rhode Island....101	39 South Carolina....413	40 South Dakota....85	41 Tennessee....569	42 Texas....719	43 Utah....88	44 Vermont....102	45 Virginia....465	46 Washington....89	47 West Virginia....266	48 Wisconsin....519	49 Wyoming....11	50 Philippine Is., Etc...54	51 Foreign....563	52 Totals....21,531	Number.
93	1	....	....	....	....	....	....	....	....	....	176	....	....	1	....	....	7	....	....	....	....	1	....	....	....	....	....	....	....	....	3	191	93
94	....	....	2	1	....	....	....	....	2	....	1	48	....	....	....	....	1	....	14	....	....	6	....	....	24	....	....	....	....	....	9	133	94
95	....	....	....	....	....	....	....	....	....	....	....	67	....	....	....	....	1	....	3	....	1	....	....	....	....	....	....	....	....	....	1	74	95
96	....	....	....	....	....	....	....	....	....	....	1	98	....	....	....	....	....	....	6	....	....	....	....	....	....	....	1	....	....	....	1	107	96
97	....	....	....	....	....	....	....	....	....	....	....	35	....	....	....	....	....	....	2	....	....	....	....	....	....	....	....	....	....	....	....	37	97
98	....	2	....	....	1	....	....	....	....	....	....	....	33	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	36	98
99	1	....	....	....	....	....	....	....	....	....	....	....	....	89	....	....	3	....	....	....	....	....	....	....	....	....	....	....	....	....	3	98	99
100	2	....	....	....	....	....	....	....	....	....	....	....	....	31	....	....	16	....	....	....	....	....	....	....	....	....	....	....	....	....	....	51	100
101	1	1	1	....	....	1	....	....	....	1	....	....	....	69	....	....	8	....	1	1	....	....	....	....	....	....	1	1	....	....	1	94	101
102	....	....	....	1	....	....	....	....	2	....	1	....	....	33	1	....	10	....	....	....	....	....	....	....	....	1	14	....	....	....	....	91	102
103	1	....	....	....	....	....	....	....	....	....	1	....	....	151	....	....	1	....	....	....	....	....	....	....	....	1	2	....	....	....	2	191	103
104	....	....	....	....	....	....	....	....	....	....	....	....	....	16	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	16	104
105	....	....	....	....	....	....	....	....	....	....	....	....	....	167	....	....	8	....	....	....	....	....	....	2	....	....	3	....	....	....	1	220	105
106	....	....	....	....	....	....	....	....	....	....	....	....	....	44	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	45	106
107	....	....	....	....	....	....	....	....	....	....	....	....	....	....	41	....	....	....	....	....	....	5	....	....	....	....	....	....	....	....	....	51	107
108	....	....	....	1	....	....	....	....	....	....	....	....	....	....	18	....	....	....	....	....	....	2	....	....	....	....	....	....	....	....	....	21	108
109	....	....	....	....	1	....	....	....	....	....	1	....	....	....	....	53	....	....	....	....	....	....	....	....	....	18	....	....	....	....	1	80	109
110	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	31	....	....	....	....	....	....	....	....	....	2	....	....	....	....	....	35	110
111	....	....	....	1	....	....	....	....	21	....	6	....	....	1	....	....	107	....	....	....	....	....	....	....	....	....	1	2	....	1	4	159	111
112	3	6	4	4	....	2	....	1	34	....	6	22	4	14	....	4	293	5	4	1	1	5	9	1	4	5	6	....	....	15	531	112
113	....	....	....	....	....	....	....	....	33	2	8	....	....	....	....	....	370	1	....	....	1	....	5	....	....	1	....	....	....	29	455	113
114	....	....	....	....	....	....	....	....	13	....	....	....	....	1	....	....	164	....	1	....	....	....	....	....	....	....	....	....	....	11	197	114
115	....	3	1	2	....	....	....	1	32	....	19	17	....	14	....	2	328	3	2	....	3	10	3	1	9	2	2	2	....	1	19	529	115
116	1	1	....	1	....	....	....	....	6	....	11	....	....	1	....	....	42	1	1	....	1	1	....	....	2	1	1	....	....	1	17	114	116
117	....	....	....	....	....	....	....	....	....	....	2	....	....	4	....	....	298	....	....	....	....	....	....	....	....	....	2	....	....	....	....	309	117
118	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	212	....	....	....	....	....	2	....	....	....	....	....	....	229	118
119	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	6	....	....	....	....	....	....	....	....	....	....	....	7	119
120	....	1	3	....	....	....	....	....	....	....	....	....	....	1	1	....	....	....	1	....	4	1	1	....	1	1	....	....	....	....	1	22	120
121	....	....	....	....	....	....	....	....	....	....	....	4	....	1	....	....	....	....	1	....	80	....	....	....	3	....	....	....	....	....	....	98	121
122	....	....	33	11	....	....	....	....	....	....	....	8	....	1	4	....	2	....	16	....	50	48	....	....	....	....	3	....	....	....	12	281	122
123	....	....	14	1	....	....	....	....	2	....	3	10	....	....	7	....	....	....	4	....	83	11	....	....	1	....	1	....	....	....	3	203	123
124	1	....	17	11	....	....	....	....	....	....	....	3	....	2	5	....	....	....	5	....	108	20	....	....	....	....	....	....	....	....	2	271	124
125	....	....	39	....	....	....	....	....	....	....	....	....	....	1	2	....	....	....	....	....	42	3	....	....	....	....	....	....	....	....	....	105	125
126	....	....	114	3	....	....	....	....	....	....	....	....	....	....	15	....	....	....	1	....	75	42	....	....	....	....	1	....	....	2	....	425	126
127	....	....	4	....	....	....	....	....	1	....	....	2	....	....	....	....	1	....	....	....	11	2	....	....	2	....	....	....	....	1	....	35	127
128	2	....	4	....	....	....	....	....	....	....	1	7	....	....	5	....	1	....	....	....	29	3	....	....	6	....	4	....	....	....	....	112	128
129	....	....	....	....	....	....	....	....	....	2	....	....	....	....	7	....	....	....	....	....	1	70	....	....	....	....	....	....	....	....	....	81	129
130	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	205	....	....	....	....	....	....	....	....	....	206	130
131	....	....	2	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	2	60	....	....	....	....	....	....	....	....	1	67	131
132	....	....	....	....	....	....	....	....	....	....	....	....	....	....	2	....	....	....	....	....	....	59	....	....	....	....	....	....	....	....	....	61	132
133	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	25	....	....	....	....	....	....	....	....	30	133
134	1	....	....	....	....	....	....	18	3	....	19	....	....	1	....	....	6	2	....	....	....	....	....	68	....	....	....	....	....	....	5	178	134
135	....	1	....	....	....	....	....	....	1	....	1	19	....	....	....	....	....	....	7	....	2	3	....	....	140	....	10	....	....	....	1	191	135
136	....	1	....	....	....	....	....	....	3	....	1	38	....	....	....	....	....	....	1	....	....	....	....	....	81	....	6	....	....	2	....	137	136
137	....	....	3	....	....	....	....	....	....	....	1	6	....	....	....	1	2	....	3	....	....	1	....	....	47	....	3	....	....	....	1	87	137
138	....	....	....	....	....	....	....	....	....	....	3	....	....	1	....	....	2	....	....	....	....	....	....	....	....	....	20	....	....	....	....	27	138
139	9	38	....	....	....	....	....	....	....	....	....	....	6	1	....	....	....	....	....	1	....	....	....	....	....	....	....	230	....	....	....	293	139
140	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	2	....	....	....	....	....	....	....	47	....	....	....	51	140
141	....	....	....	....	....	....	....	....	....	....	1	....	1	....	....	....	....	....	....	1	....	....	....	....	....	....	....	39	....	....	....	48	141
	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	

(Concluded from page 688)

Medical Education.—Candidates for the degree of Doctor of Medicine shall have attended four courses of study in four calendar years, each annual course to have been of not less than thirty-two teaching weeks' duration, and at least ten months shall intervene between the beginning of any course and the beginning of the preceding course. No time credit shall be given to holders of a Bachelor's degree, but subject credit may be given on satisfactory examination. Four years of residence in a medical college shall be required of all candidates for the degree of doctor of medicine.

The entire course of four years shall consist of at least 4,000 hours, divided into the subjects as shown in the table (page 688), and no college shall be recognized that falls below this standard over 20 per cent. in any one branch or over 10 per cent. in the total. Laboratory or clinic hours may be substituted for didactic hours.

Each student shall be obliged to attend 80 per cent. of the exercises in every annual course of study for which he seeks credit. No student shall be given credit on examination unless he attains a grade of at least 70 per cent., or its equivalent, in any other marking system. And no student shall be graduated unless he shall have attained a passing grade in each and all subjects of the required curriculum.

A college which gives less than a four years' course of study, but does not graduate students, and is possessed of other required qualifications, may be admitted to membership.

Each medical college in membership in the Association shall print in every annual catalogue or announcement a table of the total number of hours work given in said college, arranged both by subjects and years.

The following colleges are members of the Association: College of Physicians and Surgeons, Los Angeles, Cal.; Leland Stanford Junior University College of Medicine, Palo Alto and San Francisco, Cal.; University of California, Medical Department, Berkeley, Los Angeles, and San Francisco, Cal.; University of Colorado, School of Medicine, Boulder, Colo.; Denver and Gross College of Medicine, Denver, Colo.; George Washington University Department of Medicine, Washington, D. C.; Georgetown University School of Medicine, Washington, D. C.; Howard University Medical Department, Washington, D. C.; American Medical Missionary College, Battle Creek, Mich., and Chicago, Ill.; College of Physicians and Surgeons, Chicago, Ill.; Indiana University School of Medicine, Bloomington and Indianapolis, Ind.; Drake University College of Medicine, Des Moines, Iowa; State University of Iowa, College of Medicine, Iowa City, Iowa; Kansas Medical College, Topeka, Kan.; University of Kansas, School of Medicine, Lawrence, Kan.; University of Louisville, Medical Department, Louisville, Ky.; Tulane University, Medical Department, New Orleans, La.; Baltimore Medical College, Baltimore, Md.; College of Physicians and Surgeons, Baltimore, Md.; Johns Hopkins University, Medical Department, Baltimore, Md.; University of Maryland School of Medicine, Baltimore, Md.; Harvard Medical School, Boston, Mass.; Tufts College Medical School, Boston, Mass.; Detroit College of Medicine, Detroit, Mich.; University of Michigan, Department of Medicine and Surgery, Ann Arbor, Mich.; University of Mississippi Medical Department, Oxford, Miss.; University of Missouri Department of Medicine, Columbia, Mo.; University Medical College, Kansas City, Mo.; St. Louis University Medical Department, St. Louis, Mo.; Washington University Medical Department, St. Louis, Mo.; Washington University Medical Department, Omaha, Neb.; University of Buffalo, Medical Department, Buffalo, N. Y.; University and Bellevue Hospital Medical College, New York, N. Y.; Cornell University Medical College, New York, N. Y.; University of North Carolina Medical Department, Chapel Hill, N. C.; Wake Forest College School of Medicine, Wake Forest, N. C.; University of North Dakota Medical Department, University, N. D.; Cleveland College of Physicians and Surgeons, Cleveland, Ohio; Western Reserve University Medical College, Cleveland, Ohio; Starling-Ohio Medical College, Columbus, Ohio; State University of Oklahoma School of Medicine, Norman, Okla.; Meharry Medical College, Nashville, Tenn.; Vanderbilt University, Medical Department, Nashville, Tenn.; Medical College of Virginia, Richmond, Va.; University College of Medicine, Richmond, Va.; University of West Virginia Medical Department, Morgantown, W. Va.; University of Wisconsin College of Medicine, Madison, Wis.

The secretary-treasurer of the Association is Dr. Fred C. Zapffe, 3431 Lexington Street, Chicago.

TABLE 3.—WHERE STUDENTS STUDY MEDICINE

A. STUDENTS FROM THE EASTERN STATES

Eastern States.	Year.	Attending Medical Schools in the East. Students.	East. Percentage.	Middle States. Students.	Middle States. Percentage.	West. Students.	West. Percentage.	South. Students.	South. Percentage.	Totals.
Connecticut	1908	264	96.7	6	2.2	0	0.	3	1.1	273
	1909	255	97.0	5	1.9	1	0.4	2	0.7	263
	1910	258	95.2	8	2.9	1	0.4	4	1.5	271
Delaware	1908	52	98.1	1	1.9	0	0.	0	0.	53
	1909	53	98.1	0	0.	1	1.9	0	0.	54
	1910	38	97.4	0	0.	0	0.	1	2.6	39
Dist. of Columbia	1908	117	96.0	2	1.6	1	0.8	2	1.6	122
	1909	109	92.4	4	3.4	0	0.	5	4.2	118
	1910	109	94.0	5	4.3	0	0.	2	1.7	116
Maine	1908	172	94.5	6	3.3	2	1.1	2	1.1	182
	1909	165	94.8	5	2.9	3	1.7	1	0.6	174
	1910	149	97.4	4	2.6	0	0.	0	0.	153
Maryland	1908	236	95.5	6	2.4	1	0.5	4	1.6	247
	1909	302	97.1	4	1.3	0	0.	5	1.6	311
	1910	298	97.4	4	1.3	0	0.	4	1.3	306
Massachusetts	1908	835	97.4	15	1.7	4	0.5	3	0.4	857
	1909	789	97.0	12	1.5	7	0.9	5	0.6	813
	1910	778	96.2	20	2.5	4	0.4	7	0.9	809
New Hampshire	1908	113	95.0	4	3.4	1	0.8	1	0.8	119
	1909	102	99.0	1	1.0	0	0.	0	0.	103
	1910	95	97.9	0	0.	2	2.1	0	0.	97
New Jersey	1908	426	94.2	18	4.0	2	0.5	6	1.3	452
	1909	438	97.1	10	2.2	1	0.3	2	0.4	451
	1910	445	94.9	16	3.4	1	0.2	7	1.5	469
New York	1908	1978	93.5	105	5.0	8	0.4	25	1.1	2116
	1909	1959	92.3	133	6.3	12	0.5	19	0.9	2123
	1910	1972	93.0	126	5.9	10	0.5	12	0.6	2120
Pennsylvania	1908	1920	91.3	155	7.4	4	0.2	25	1.1	2104
	1909	2005	92.9	130	6.0	11	0.5	13	0.6	2159
	1910	1828	91.9	145	7.3	7	0.3	10	0.5	1990
Rhode Island	1908	92	92.9	5	5.1	0	0.	2	2.0	99
	1909	94	94.9	3	3.1	2	2.0	0	0.	99
	1910	95	94.0	5	5.0	0	0.	1	1.0	101
Vermont	1908	93	87.8	10	9.4	3	2.8	0	0.	106
	1909	95	89.6	7	6.6	4	3.8	0	0.	106
	1910	93	91.1	7	6.9	2	2.0	0	0.	102
Virginia	1908	448	86.0	14	2.7	0	0.	59	11.3	521
	1909	410	85.1	17	3.5	3	0.6	52	10.8	482
	1910	400	86.0	21	4.5	3	0.7	41	8.8	465
West Virginia	1908	190	65.1	89	30.5	0	0.	13	4.4	292
	1909	168	62.0	89	32.8	0	0.	14	5.2	271
	1910	149	56.0	105	39.5	2	0.7	10	3.8	266
Totals	1908	6936	92.0	436	5.8	26	0.3	145	1.9	7543
	1909	6944	92.3	420	5.6	45	0.5	118	1.6	7527
	1910	6707	91.8	466	6.4	32	0.5	99	1.3	7304

B. STUDENTS FROM THE MIDDLE STATES

Middle States.	Year.	East. Students.	East. Percentage.	Middle States. Students.	Middle States. Percentage.	West. Students.	West. Percentage.	South. Students.	South. Percentage.	Totals.
Illinois	1908	55	3.1	1651	94.4	14	0.8	29	1.7	1749
	1909	54	2.8	1832	95.4	14	0.8	20	1.0	1920
	1910	315	16.0	1613	82.3	14	0.8	17	0.9	1959
Indiana	1908	23	3.2	680	94.6	9	1.2	7	1.0	719
	1909	29	4.8	565	92.6	9	1.5	7	1.1	610
	1910	28	4.9	530	92.8	5	0.9	8	1.4	571
Iowa	1908	26	3.6	676	94.4	8	1.1	6	0.9	716
	1909	35	4.8	658	91.1	27	3.7	2	0.4	722
	1910	30	4.7	582	91.5	22	3.5	2	0.3	636
Kansas	1908	26	5.6	418	89.9	3	0.6	18	3.9	465
	1909	20	5.2	349	90.2	9	2.3	9	2,3	387
	1910	26	6.3	362	87.9	12	2.9	12	2.9	412
Kentucky	1908	33	5.2	541	85.2	0	0.	61	9.6	635
	1909	28	5.6	401	80.7	6	1.2	62	12.5	497
	1910	29	6.8	331	77.3	2	0.5	66	15.4	428
Michigan	1908	24	4.9	457	92.7	4	0.8	8	1.6	493
	1909	11	2.2	470	95.7	6	1.4	4	0.7	491
	1910	11	2.5	429	95.6	6	1.3	3	0.6	449
Minnesota	1908	21	5.7	350	94.3	0	0.	0	0.	371
	1909	25	7.2	313	90.2	7	2.0	2	0.6	347
	1910	16	4.7	313	92.6	6	1.8	3	0.9	338
Missouri	1908	26	2.8	851	92.6	9	1.0	33	3.6	919
	1909	27	3.4	743	91.4	12	1.3	31	3.9	813
	1910	28	3.5	734	91.0	12	1.4	33	4.1	807
Nebraska	1908	12	3.6	317	95.5	2	0.6	1	0.3	332
	1909	8	2.3	329	95.1	9	2.6	0	0.	346
	1910	8	2.7	285	94.6	8	2.7	0	0.	301
North Dakota	1908	6	7.9	70	92.1	0	0.	0	0.	76
	1909	8	10.4	68	88.3	1	1.3	0	0.	77
	1910	7	7.2	89	91.8	1	1.0	0	0.	97
Ohio	1908	140	15.3	756	82.9	5	0.6	11	1.2	912
	1909	116	12.5	792	85.3	13	1.4	8	0.8	929
	1910	99	11.0	780	86.5	14	1.6	9	0.9	902
South Dakota	1908	3	4.2	66	93.0	0	0.	2	2.8	71
	1909	1	1.1	86	98.9	0	0.	0	0.	87
	1910	4	4.7	80	94.1	1	1.2	0	0.	85
Wisconsin	1908	22	4.6	450	94.2	2	0.4	4	0.8	478
	1909	18	4.2	407	94.7	5	1.1	0	0.	430
	1910	16	3.1	498	96.0	5	0.9	0	0.	519
Totals	1908	417	5.3	7283	91.8	56	0.6	180	2.3	7936
	1909	380	5.0	7013	91.6	118	1.5	145	1.9	7656
	1910	617	8.2	6626	88.3	108	1.5	153	2.0	7504

C. STUDENTS FROM THE WESTERN STATES

Western States.	Year.	East. Students.	East. Percentage.	Middle States. Students.	Middle States. Percentage.	West. Students.	West. Percentage.	South. Students.	South. Percentage.	Totals.
Arizona	1908	1	6.7	4	26.7	2	13.3	8	53.3	15
	1909	1	8.3	3	25.0	2	16.7	6	50.0	12
	1910	2	40.0	1	20.0	0	0.	2	40.0	5
California	1908	55	13.5	39	9.6	306	75.0	8	1.9	408
	1909	52	18.4	33	11.7	192	68.1	5	1.8	282
	1910	48	13.4	26	7.2	277	77.2	8	2.2	359
Colorado	1908	9	5.8	28	17.9	117	75.0	2	1.3	156
	1909	10	6.7	21	14.0	116	77.3	3	2.0	150
	1910	13	8.3	29	18.5	112	71.3	3	1.9	157
Idaho	1908	2	8.3	17	70.9	5	20.8	0	0.	24
	1909	1	3.8	16	61.6	8	30.8	1	3.8	26
	1910	1	4.8	11	52.2	9	42.8	0	0.	21
Montana	1908	8	18.6	32	74.4	1	2.3	2	4.7	43
	1909	6	19.4	21	67.7	4	12.9	0	0.	31
	1910	8	21.6	25	67.6	4	10.8	0	0.	37
Nevada	1908	1	12.5	3	37.5	3	37.5	1	12.5	8
	1909	1	12.5	3	37.5	4	50.0	0	0.	8
	1910	0	0.	5	83.3	1	16.7	0	0.	6
New Mexico	1908	2	18.2	3	27.3	2	18.2	4	36.3	11
	1909	3	37.5	4	50.0	1	12.5	0	0.	8
	1910	3	27.3	5	45.5	1	9.1	2	18.1	11
Oregon	1908	22	16.8	15	11.5	92	70.2	2	1.5	131
	1909	19	16.4	19	16.4	77	66.3	1	0.9	116
	1910	15	11.5	25	19.2	90	69.3	0	0.	130
Utah	1908	35	35.4	34	34.3	29	29.3	1	1.0	99
	1909	22	29.3	32	42.7	20	26.7	1	1.3	75
	1910	25	28.4	35	39.8	26	29.6	2	2.2	88
Washington	1908	26	25.2	47	45.7	26	25.2	4	3.9	103
	1909	29	32.6	36	40.4	21	23.6	3	3.4	89
	1910	26	29.3	40	44.9	21	23.6	2	2.2	89
Wyoming	1908	1	16.7	4	66.7	1	16.7	0	0.	6
	1909	3	21.4	5	35.7	5	35.7	1	7.2	14
	1910	3	27.3	5	45.4	3	27.3	0	0.	11
Totals	1908	162	16.1	226	22.5	584	58.2	32	3.2	1004
	1909	147	18.1	193	23.8	450	55.5	21	2.6	811
	1910	144	15.8	207	22.6	544	59.5	19	2.1	914

D. STUDENTS FROM THE SOUTHERN STATES

Southern States.	Year.	East. Students.	East. Percentage.	Middle States. Students.	Middle States. Percentage.	West. Students.	West. Percentage.	South. Students.	South. Percentage.	Totals.
Alabama	1908	36	5.3	24	3.5	0	0.	623	91.2	683
	1909	34	5.0	24	3.4	0	0.	629	91.6	687
	1910	33	5.2	27	4.3	1	0.2	572	90.3	633
Arkansas	1908	20	4.8	60	14.3	0	0.	339	80.9	419
	1909	20	5.2	47	12.2	0	0.	317	82.6	384
	1910	18	4.5	56	14.3	1	0.5	317	80.7	392
Florida	1908	19	14.4	9	6.8	0	0.	104	78.8	132
	1909	27	17.2	9	5.7	0	0.	121	77.1	157
	1910	22	15.4	12	8.4	1	0.7	108	75.5	143
Georgia	1908	51	7.8	17	2.6	1	0.1	586	89.5	655
	1909	50	7.6	15	2.2	1	0.2	593	90.0	659
	1910	45	6.4	13	1.9	0	0.	644	91.7	702
Louisiana	1908	19	3.9	30	6.2	0	0.	438	89.9	487
	1909	20	4.4	31	6.8	1	0.2	404	88.6	456
	1910	14	3.7	23	6.1	3	0.8	336	89.4	376
Mississippi	1908	16	2.7	39	6.5	1	0.4	547	90.4	603
	1909	18	3.0	40	6.7	1	0.2	534	90.1	593
	1910	17	3.0	37	6.6	0	0.	506	90.4	560
No. Carolina	1908	158	31.5	13	2.5	2	0.4	329	65.6	502
	1909	170	33.1	11	2.1	1	0.2	332	64.6	514
	1910	174	35.3	11	2.2	0	0.	308	62.5	493
Oklahoma	1908	8	5.3	41	27.0	1	0.7	102	67.0	152
	1909	8	4.3	55	29.6	0	0.	123	66.1	186
	1910	6	3.1	52	26.5	0	0.	134	68.4	192
So. Carolina	1908	73	21.3	9	2.6	0	0.	261	76.1	343
	1909	66	16.8	12	3.0	1	0.3	314	79.9	393
	1910	75	18.2	8	1.9	0	0.	330	79.9	413
Tennessee	1908	19	3.1	45	7.3	1	0.1	552	89.5	617
	1909	21	3.9	38	7.1	0	0.	478	89.0	537
	1910	26	4.5	43	7.6	0	0.	500	87.9	569
Texas	1908	41	4.7	113	12.9	3	0.4	717	82.0	874
	1909	39	5.2	76	10.1	7	0.9	629	83.8	751
	1910	45	6.3	70	9.7	6	0.8	598	83.2	719
Totals	1908	460	8.4	400	7.3	9	0.1	4598	84.2	5467
	1909	473	8.9	358	6.7	12	0.3	4474	84.1	5317
	1910	475	....	352	....	12	....	4353	....	5192
Average 1908, 1909, and 1910.	A	6862	92.1	441	5.9	34	0.4	121	1.6	7458
	B	472	6.1	6974	90.6	94	1.2	159	2.1	7699
	C	151	16.6	209	23.0	526	57.8	24	1.6	910
	D	469	8.8	370	6.9	11	0.3	4475	84.0	5325
Migrating Students		1092	42.7	1020	39.9	139	5.5	304	11.9	2553

CHANGES IN COLLEGES IN TEN YEARS

COLLEGES MERGED

1901

Marion-Sims College of Medicine and the Beaumont Medical College, St. Louis, Mo., united, forming the Marion-Sims-Beaumont Medical College (now the St. Louis University School of Medicine).

Columbian Medical College, Kansas City, Mo., merged into the Medico-Chirurgical College of Kansas City, Missouri.

1902

Denver College of Medicine and the Gross Medical College, both of Denver, Colo., united, forming the Denver and Gross College of Medicine.

Dunham Medical College, Chicago, merged into the Hering Medical College, Chicago.

Hahnemann Medical College of Kansas City University and the Kansas City (Mo.) Homeopathic Medical College united, forming the Kansas City Hahnemann Medical College.

1903

National University Medical Department, Washington, D. C., absorbed by the Columbian University Medical Department (now the George Washington University, Department of Medicine).

Medical Department State University, Louisville, Ky., absorbed by the Louisville National Medical College.

Saginaw Valley (Michigan) Medical College absorbed by the Michigan College of Medicine and Surgery of Detroit.

1904

Chicago Homeopathic Medical College merged into the Hahnemann Medical College and Hospital, Chicago.

Dallas (Texas) Medical College, merged into the Baylor University College of Medicine, Dallas, Texas.

1905

Medical College of Indiana and the Central College of Physicians and Surgeons, both of Indianapolis, merged with the Fort Wayne College of Medicine, forming the Indiana Medical College, School of Medicine of Purdue University, Indianapolis.

The College of Physicians and Surgeons of Kansas City, Kansas, the Medico-Chirurgical College of Kansas City, Mo., and the Kansas city (Missouri) Medical College united to form the Clinical Department of the University of Kansas School of Medicine.

The Central Medical College and the Ensworth Medical College, both of St. Joseph, Mo., united to form the Ensworth-Central Medical College, which has since resumed the name of Ensworth Medical College.

1907

The State College of Physicians and Surgeons, Indianapolis, was taken over by the Indiana University School of Medicine as its clinical department.

The Louisville Medical College and the Hospital College of Medicine, both of Louisville, Ky., united to form the Louisville and Hospital Medical College.

The Kentucky University Medical Department was merged into the University of Louisville Medical Department.

The Starling Medical College and the Ohio Medical University of Columbus, Ohio, merged, forming the Starling-Ohio Medical College.

1908

Indiana Medical College, School of Medicine of Purdue University, Indianapolis, was merged into the Indiana University School of Medicine.

Keokuk (Iowa) Medical College, College of Physicians and Surgeons, merged into Drake University College of Medicine, Des Moines, Iowa.

Kentucky School of Medicine and the Louisville and Hospital Medical College were both merged into the University of Louisville Medical Department.

Minneapolis College of Physicians and Surgeons, the Medical Department of Hamline University, was merged into the University of Minnesota, College of Medicine and Surgery.

1909

The University of Southern California College of Medicine was taken over by the University of California as its Los Angeles Medical Department.

The Medical College of Ohio and the Miami Medical College merged, forming the Ohio-Miami Medical College of the University of Cincinnati.

The University of Nashville Medical Department and the University of Tennessee Medical Department united to form the Medical Department of the Universities of Nashville and Tennessee.

1910

Denver and Gross College of Medicine has united with the University of Colorado, School of Medicine.

Illinois Medical College has been merged into the Bennett Medical College, which is now the Medical Department of Loyola University.

The Cleveland College of Physicians and Surgeons has been merged into the Western Reserve University Medical Department.

Pulte Medical College of Cincinnati, Ohio, has been moved to Cleveland and united with the Cleveland Homeopathic Medical College, forming the Cleveland-Pulte Medical College.

COLLEGES SUSPENDED OR NOT RECOGNIZED BY THEIR OWN STATE BOARD

1900

National Normal University, College of Medicine (Ohio).

1901

Northwestern University Woman's Medical School (Illinois).
Beaumont Hospital Medical College (Missouri).*
Marion-Sims College of Medicine (Missouri).*
Columbian Medical College, Kansas City (Missouri).*
Cincinnati College of Medicine and Surgery.

1902

Denver College of Medicine (Colorado).*
Gross Medical College (Colorado).*
Dunham Medical College, Chicago.*
Hahnemann Medical College of Kansas City University (Missouri).*
Kansas City Homeopathic Medical College (Missouri).*

1903

Saginaw Valley Medical College (Michigan).*
Woman's Medical College, Kansas City (Missouri).
Laura Memorial Woman's Medical College, Cincinnati, (Ohio).
National University, Medical Department (D. C.)*
Medical Department of State University (Kentucky).*

1904

Chicago Homeopathic Medical College.*
Twentieth Century Physio-Medical College (Oklahoma).[1]
Chattanooga National Medical College (Tennessee).
Dallas Medical College (Texas).*

1905

Harvey Medical College, Chicago (Illinois).
Medical College of Indiana.*
Central College of Physicians and Surgeons (Indiana).*
Fort Wayne College of Medicine (Indiana).*
College of Physicians and Surgeons, Kansas City (Kansas).*
Medico-Chirurgical College, Kansas City (Missouri).*
Kansas City Medical College (Missouri).*
Central Medical College, St. Joseph (Missouri).*
Ensworth Medical College, St. Joseph (Missouri).*

1907

Dearborn Medical College, Chicago (Illinois).
State College of Physicians and Surgeons (Indiana).*
Louisville Medical College.*
Hospital College of Medicine, Louisville.*
Kentucky University, Medical Department.*
Baltimore University School of Medicine.
Michigan College of Medicine and Surgery.
Grand Rapids Medical College (Michigan).
Starling Medical College (Ohio).*
Ohio Medical University.*

1908

Eclectic Medical College of Indiana.
Indiana Medical College.*
Keokuk Medical College, College of Physicians and Surgeons (Iowa).*
Kentucky School of Medicine.*
Louisville and Hospital Medical College.*
Minneapolis College of Physicians and Surgeons.*
Oklahoma Medical College.
Physio-Medical College of Texas.
Gate City Medical College.

1909

University of Southern California, College of Medicine.*
Denver College of Physicians and Surgeons.
National Medical University, Chicago.[2]
Physio-Medical College of Indiana.
Sioux City College of Medicine.
University of Minnesota, College of Homeopathic Med. and Surg.
Homeopathic Medical College of Missouri.
Nebraska College of Medicine.
Medical College of Ohio.*
Miami Medical College.*
University of Nashville, Medical Department.*
University of Tennessee, Medical Department.*
University of the South.

1910

Illinois Medical College.*
Woman's Medical College of Baltimore.
Hippocratean College of Medicine (Missouri).
Cleveland College of Physicians and Surgeons.*
Pulte Medical College.*
Cleveland Homeopathic Medical College.*
Epworth College of Medicine.
Chattanooga Medical College.

---

* Closed by merger.
1. Exposed as fraudulent.
2. Declared not in good standing by the Illinois State Board of Health.

NEW COLLEGES

1900

Eclectic Medical College of Indiana, Indianapolis, Ind.*
Hahnemann Medical College of the Kansas City (Missouri) University.†
Twentieth Century Physio-Medical College, Guthrie, Okla.*
Knoxville Medical College, Knoxville, Tenn.
University of West Tennessee, Medical Department, Memphis.
Dallas Medical College, Dallas, Tex.†
University of Dallas, Medical Department, Dallas, Tex.
(Now the Baylor University, College of Medicine).

1901

Chicago Eclectic Medical College.
(Now the Chicago College of Medicine and Surgery).
Marion-Sims-Beaumont College of Medicine, St. Louis.‡
(Now the St. Louis University, School of Medicine).
Temple University Department of Medicine, Philadelphia.

1902

Oakland College of Medicine and Surgery, Oakland, Cal.
Denver and Gross College of Medicine, Denver, Colo.‡
Kansas City Hahnemann Medical College, Kansas City, Mo.‡
Wake Forest College, School of Medicine, Wake Forest, N. C.
Gate City Medical College, Texarkana, Tex.*
Physio-Medical College of Texas, Dallas, Tex.*
West Virginia University, College of Medicine, Morgantown.

1903

College of Physicians and Surgeons, Los Angeles, Cal.
Dearborn Medical College, Chicago.*
University of Mississippi, Medical Department, Oxford.
Bell Medical College (later the College of Physicians and Surgeons) Dallas, Tex.*
Southwestern University Medical College, Dallas, Tex.

1904

International Medical Missionary College, Atlanta, Ga.*
Epworth College of Medicine, Oklahoma City, Okla.*

1905

Atlanta School of Medicine, Atlanta, Ga.
Indiana Medical College, Indianapolis.†‡
(Another college by the same name was organized in 1869).
Indiana University School of Medicine, Bloomington.
Ensworth Central Medical College, St. Joseph, Mo.‡
(Has since resumed the name of Ensworth Medical College).
Nebraska College of Medicine, Lincoln, Neb.*
Fordham University School of Medicine, New York City.
University of North Dakota, College of Medicine.

1906

College of Physicians and Surgeons, Little Rock, Ark.
State College of Physicians and Surgeons, Indianapolis.†
Mississippi Medical College, Meridian, Miss.
College of Physicians and Surgeons, Memphis, Tenn.
University of Utah, Department of Medicine.

1907

Reliance Medical College, Chicago.
Louisville and Hospital Medical College, Louisville, Ky.†‡
Hippocratean College of Medicine, St. Louis.*
Starling-Ohio Medical College, Columbus, Ohio.‡
Oklahoma Medical College, Oklahoma City, Okla.*
University of South Dakota, College of Medicine.
University of Wisconsin, Medical School.
Philippine Medical School, Manila, P. I.

1908

Hospital Medical College, Atlanta, Ga.
College of Medical Evangelists, Loma, Linda, Cal.
Ohio-Miami Medical College of the University of Cincinnati.‡
Universities of Nashville and Tennessee, Medical Department.‡

1910

Cleveland-Pulte Medical College, Cleveland, Ohio.‡

* Has since become extinct.
† Closed later by merger.
‡ Organized by merger.

COLLEGE NOTES

Endowments and New Buildings

Connecticut.—Yale University received $500,000 through a bequest from the late Levi I. Shoemaker, of Wilkes-Barre, for the use of the Yale Medical School.

California.—Cooper Medical College, San Francisco, received $5,000 through the will of Mrs. Myrick.

Illinois.—A new building for Bennett Medical College, now the Medical Department of Loyola University, Chicago, has been erected at a cost of $60,000, this sum being contributed by physicians.

Iowa.—A sum of $150,000 was raised by popular subscription for Drake University College of Medicine, Des Moines, to make needed improvements and for current expenses.

Maryland.—The new Phipps Dispensary has been erected on the hospital grounds of Johns Hopkins University Medical School at a cost of approximately $500,000.

Minnesota.—Three new buildings have been erected for the College of Medicine of the University of Minnesota at a total cost of $565,000. One of these was the Elliott Hospital, named after Dr. A. F. Elliott, through whose bequest of $125,000, supplemented by $40,000 from an appropriation by the state legislature, the building was erected. The two other buildings were the new Institute of Anatomy and a new medical building, each costing approximately $200,000.

Missouri.—St. Louis University, School of Medicine, was the recipient of $20,000 from Ambassador Richard C. Kerens, to be used as an endowment fund for free beds in the Rebekah Hospital.

Approximately $3,000,000 was received by Washington University Medical Department from William K. Bixby, Adolphus Busch, Edward Mallinkrodt and Dr. Robert S. Brookings, for the construction of the new medical buildings on Kings Highway. Counting the value of the hospitals which were also transferred to Washington University, the entire gift came to about $6,000,000.

Nebraska.—Plans have been accepted for the new group of medical buildings to be erected at Omaha for the College of Medicine of the University of Nebraska.

The John A. Creighton Medical College has erected a new medical building on Fourteenth Street, at a cost of $60,000.

New York.—Columbia University, College of Physicians and Surgeons, received approximately $3,000,000 from William K. Vanderbilt, George J. Gould, Frank A. Munsey and others, to be used in the erection of new medical buildings adjoining the University Campus at Morningside Heights. Another gift of $15,000 was received from William D. Sloan to erect a new addition to Sloan Maternity Hospital and $18,000 was received from the children of Dr. Abraham DuBois, who was a graduate of the College of Physicians and Surgeons, for the establishment of a fellowship in memory of their father.

A new addition to the building of the University and Bellevue Hospital Medical College has been erected at a cost of $65,000. Also a gift of $100,000 was received from Mrs. Helen Hartley Jenkins to endow the chair of medicine.

Section by section the old Long Island College Hospital has been torn down and replaced by a new strictly modern structure. The last section is now approaching completion. The cost of the new structure was approximately $2,000,000.

A new building is being erected by Fordham University School of Medicine, which will cost about $1,000,000 when completed.

Donations amounting to $25,000 have been received by the New York Homeopathic Medical College, to be used for changes in the college building and for the improvement of the laboratories.

Cornell University received $50,000 from Andrew Carnegie to be used in the enlargement of the laboratory for chemical research.

Ohio.—Western Reserve University received $250,000 from Mr. H. M. Hanna, as an addition to the endowment of the medical department. The income will be used to place the clinical professorships on a modern university basis.

A fund of $45,000 was donated by the friends of the late Dr. Eichberg, to endow the Joseph Eichberg chair of physiology in the Ohio-Miami Medical College of the University of Cincinnati. The chair was established last December (1909).

A new college building has been erected by the Eclectic Medical Institute (now College), Cincinnati, at a cost of $50,000.

Pennsylvania.—Gifts amounting to $800,000 were received by the University of Pennsylvania for the endowment of the Henry Phipps Institute for the study and prevention of tuberculosis and for the endowment of the clinical chairs. A new addition to the University of Pennsylvania Hospital was opened May 12, which was built at a cost of $37,000.

A new college building is now being erected by the Medical Department of the University of Pittsburg. The approximate cost when completed will be $200,000.

Jefferson Medical College received $60,000 from Mrs. Maria Gross Horwitz, daughter of the late Dr. Samuel D. Gross, for the purpose of founding a chair of surgery, in memory of her father. Another gift from Daniel Baugh, a member of the board of trustees, is the property including the building formerly occupied by the Pennsylvania Dental School, which is valued at $50,000.

South Carolina.—The medical building of the Medical College of the State of South Carolina has been extensively remodeled.

Vermont.—The Vermont legislature gave $10,000 to the University of Vermont to enable it to assume full responsibility, financially and otherwise, for the Medical Department.

Virginia.—A sum of $10,000 has been donated toward the new building for the University College of Medicine, Richmond, to replace the one destroyed by fire last January.

Canada.—New medical buildings, at a cost of $750,000, have been erected by McGill University to replace the one destroyed by fire in 1907. Lord Strathcona, who donated the site on which the building was erected, also gave $500,000 toward the building itself.

Full Time Instructors.—The Atlanta College of Physicians and Surgeons has just added to its faculty three full-time, salaried instructors. Dr. Justin F. Grant, professor of anatomy and pathology in the medical Department of the University of West Virginia, has been secured for the chair of anatomy; Dr. George Bachman, associate professor of physiology in the Jefferson Medical College of Philadelphia, for the chair of physiology and Dr. John Funke, of Jefferson Medical College of Philadelphia, as adjunct professor of pathology, bacteriology and hygiene.

Special Preliminary Year.—A special preliminary year devoted to physics, chemistry, biology and modern languages has been established by several medical colleges, including Fordham University, School of Medicine; St. Louis University, School of Medicine and Ohio-Miami Medical College of the University of Cincinnati.

COLLEGES LISTED AS ACCEPTABLE (CLASS A)

By the Council on Medical Education of the American Medical Association

1. Giving a complete four-year course:

ALABAMA
University of Alabama Medical Department.

CALIFORNIA
Leland Standford Junior University Medical Department (Cooper Medical College).
University of California, Medical Department, San Francisco-Los Angeles.

COLORADO
Denver and Gross College of Medicine.
University of Colorado, School of Medicine.
(These two colleges have been merged and will constitute the School of Medicine of the University of Colorado.)

CONNECTICUT
Yale Medical School.

DISTRICT OF COLUMBIA
George Washington University, Department of Medicine.
Georgetown University, School of Medicine.

ILLINOIS.
Northwestern University Medical School.
Rush Medical College, University of Chicago.
College of Physicians and Surgeons, Chicago.
Hahnemann Medical College and Hospital, Chicago.

INDIANA
Indiana University School of Medicine.

IOWA
State University of Iowa, College of Medicine.
State University of Iowa, Homeopathic College.
Drake University, College of Medicine.

KANSAS
University of Kansas, School of Medicine.

KENTUCKY
University of Louisville, Medical Department.

LOUISIANA
Tulane University of Louisiana, Medical Department.

MAINE.
Medical School of Maine.

MARYLAND
Johns Hopkins University, Medical Department.
University of Maryland, School of Medicine.
College of Physicians and Surgeons, Baltimore.
Baltimore Medical College.

MASSACHUSETTS
Boston University, School of Medicine.
Harvard Medical School.
Tufts College Medical School.

MICHIGAN
University of Michigan, Department of Medicine and Surgery.
University of Michigan, Homeopathic College.
Detroit College of Medicine.

MINNESOTA
University of Minnesota, College of Medicine and Surgery.

MISSOURI
St. Louis University, School of Medicine.
Washington University Medical Department.
University Medical College, Kansas City.

NEBRASKA
Creighton Medical College.
University of Nebraska, College of Medicine.

NEW HAMPSHIRE
Dartmouth Medical School.

NEW YORK
Albany Medical College.
Columbia University, College of Physicians and Surgeons.
Cornell University Medical College.
Fordham University, School of Medicine.
Long Island College Hospital.
New York Homeopathic Medical College and Hospital.
Syracuse University, Medical Department.
University and Bellevue Hospital Medical College.
University of Buffalo, Medical Department.

OHIO
Ohio-Miami Medical College, Medical Department, University of Cincinnati.
Starling-Ohio Medical College.
Western Reserve University, Medical Department.

OREGON
University of Oregon, Medical Department.

PENNSYLVANIA
Hahnemann Medical College and Hospital, Philadelphia.
Jefferson Medical College.
Medico-Chirurgical College of Philadelphia.
University of Pennsylvania, Medical Department.
Woman's Medical College of Pennsylvania.
University of Pittsburg, Medical Department.

TENNESSEE
Vanderbilt University, Medical Department.

TEXAS
University of Texas, Medical Department.

VERMONT
University of Vermont, College of Medicine.

VIRGINIA
Medical College of Virginia.
University College of Medicine.
University of Virginia, Department of Medicine.

2. Giving a two-year course acceptably:

MISSISSIPPI
University of Misisssippi, Medical Department.

MISSOURI
University of Missouri, Medical Department.

NORTH CAROLINA
University of North Carolina College of Medicine.
Wake Forest College, Medical School.

NORTH DAKOTA
University of North Dakota, College of Medicine.

OKLAHOMA
University of Oklahoma, School of Medicine.

SOUTH DAKOTA
University of South Dakota, College of Medicine.

UTAH
University of Utah, Department of Medicine.

WEST VIRGINIA
West Virginia University, Department of Medicine.

WISCONSIN
University of Wisconsin, College of Medicine.

3. Medical Schools for the Colored Race:

Howard University, Medical Department, Washington, D. C.
Meharry Medical College, Nashville, Tenn.

PROPORTION OF PHYSICIANS TO POPULATION

Figures for population from 1908 estimated by the Census Bureau; for the number of physicians from the second edition of the American Medical Directory.

State.	Population.	Physicians.	People to Each Physician.
Alabama	2,112,465	2,287	924
Arizona	154,152	246	626
Arkansas	1,476,582	2,535	583
California	1,729,543	4,313	401
Colorado	653,506	1,690	386
Connecticut	1,054,366	1,424	740
Delaware	199,353	220	906
District of Columbia	322,212	1,231	262
Florida	679,742	786	865
Georgia	2,557,412	2,887	886
Idaho	227,670	343	664
Illinois	5,717,229	9,744	587
Indiana	2,808,115	5,036	557
Iowa	2,192,608	3,624	605
Kansas	1,763,002	2,650	642
Kentucky	2,406,859	3,708	649
Louisiana	1,618,358	1,798	900
Maine	724,508	1,198	605
Maryland	1,319,132	2,012	655
Massachusetts	3,162,347	5,577	567
Michigan	2,666,308	4,109	649
Minnesota	2,162,726	2,204	981
Mississippi	1,785,773	2,054	870
Missouri	3,491,397	6,323	552
Montana	333,695	417	800
Nebraska	1,069,579	1,776	602
Nevada	42,335	177	239
New Hampshire	443,140	680	652
New Jersey	2,352,522	2,544	925
New Mexico	229,937	367	626
New York	8,706,039	14,117	617
North Carolina	2,142,084	1,761	1,216
North Dakota	536,103	552	971
Ohio	4,594,240	7,838	585
Oklahoma	1,592,401	2,703	581
Oregon	505,339	782	646
Pennsylvania	7,241,716	11,056	655
Rhode Island	521,302	720	724
South Carolina	1,510,566	1,141	1,324
South Dakota	498,077	607	820
Tennessee	2,248,404	3,303	681
Texas	3,780,574	5,789	653
Utah	336,122	359	908
Vermont	353,739	663	533
Virginia	2,032,567	2,215	917
Washington	662,886	1,404	616
West Virginia	1,135,206	1,608	706
Wisconsin	2,356,874	2,518	936
Wyoming	109,244	202	541
U. S. Army, Navy and M.-H. Service	.....	915	...
Total	88,043,455	134,402	655

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 DEARBORN AVENUE . . . CHICAGO, ILL.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

[For other information see second page following reading matter

SATURDAY, AUGUST 20, 1910

MEDICAL EDUCATION IN THE UNITED STATES

The tabulated statistics herewith presented (pages 682 to 690) are for the year ending June 30, 1910, and are based on signed reports received directly from the medical colleges, or from other reliable sources. We wish here to acknowledge the courtesy and cooperation of the officials of the medical colleges which have made the compilation of these complete statistics possible.

STATISTICS OF COLLEGES

On pages 682 to 684 is Table 1, which gives all the colleges in session during 1909-10, the population of the city in which each college is located, the number of students, men and women, registered during the year, the number of 1910 graduates, men and women, the number of graduates holding collegiate degrees, the number of teachers for each college, the number of weeks of actual work in the college year, the total fees for each year, the executive officer of the college and the dates of beginning and ending of the next session. The figures in heavy-faced type show the totals by states. Beginning on page 667 are given essential facts concerning all medical colleges, arranged by states.

NUMBER OF MEDICAL STUDENTS

The total number of medical students (matriculants) in the United States for the year ending June 30, 1910, excluding special students, was 21,526, a decrease of 619 below 1909, a decrease of 1,076 below 1908, and a decrease of 6,616 below 1904, when the highest number of students was enrolled. It is the lowest number since THE JOURNAL began compiling these statistics in 1900. Of the total number of students, 20,136 were in attendance at the regular colleges, 867 at the homeopathic, 455 at the eclectic, 49 at the physiomedical and 19 at unclassifiable colleges. The attendance at the regular colleges shows a decrease of 418 below that of last year, of 800 below 1908 and 2,167 below 1907. In the homeopathic colleges there was a decrease of 32 below the attendance of 1909. The eclectic colleges show an increase of 42 over 1909, but a decrease of 24 below 1908 and of 90 below 1907. The physiomedical colleges had 49 this year, as compared with 52 in 1909 and 90 in 1908.

TABLE 4.—MEDICAL COLLEGE ATTENDANCE

Year.	Regular.	Homeopathic.	Eclectic.	Physio-Med.	Nondescript.	Total.
1880.....	9,776	1,250	830	...	...	11,856
1890.....	13,521	1,164	719	...	...	15,404
1900.....	22,710	1,909	522	...	...	25,171
1901.....	23,846	1,683	664	80	144	26,417
1902.....	24,878	1,617	765	91	150	27,501
1903.....	24,930	1,498	848	149	190	27,615
1904.....	23,602	1,309	1,014	123	234	28,142
1905.....	24,119	1,104	578	114	232	26,147
1906.....	23,116	1,085	644	110	249	25,204
1907.....	22,303	1,039	545	97	292	24,276
1908.....	20,936	891	479	90	206	22,602
1909.....	20,554	899	413	52	227	22,145
1910.....	20,136	867	455	49	19	21,526

GRADUATES

The total number of graduates for the year ending June 30, 1910, was 4,436, a decrease of 6 below 1909, a decrease of 305 below 1908 and of 544 below 1907. It is the lowest number graduating since THE JOURNAL began compiling these statistics, and is 1,311 less than in 1904, when there were 5,747 graduates. The percentage of graduates to matriculants was 20.7, as compared with 20.1 in 1909 and 21.0 in 1908. The number of graduates from the regular colleges was 4,113, or 23 more than in 1909, but 257 less than in 1908. From the homeopathic colleges there were 179 graduates, or 30 less than in 1909 and 36 less than in 1908. The eclectic colleges graduated 114, or 30 more than last year but 2 less than in 1908. The physiomedical colleges had 16 graduates this year, as compared with 15 last year and 12 in 1908.

TABLE 5.—MEDICAL COLLEGE GRADUATES

Year.	Regular.	Homeopathic.	Eclectic.	Physio-Med.	Nondescript.	Total.
1880.....	2,673	380	188	..	..	3,241
1890.....	3,853	380	221	..	..	4,454
1900.....	4,715	413	86	..	..	5,214
1901.....	4,879	387	148	18	12	5,444
1902.....	4,498	336	138	16	11	4,999
1903.....	5,088	420	149	24	17	5,698
1904.....	5,190	371	146	20	20	5,747
1905.....	5,126	276	153	22	23	5,600
1906.....	4,841	286	186	22	29	5,364
1907.....	4,591	225	121	11	32	4,980
1908.....	4,370	215	116	12	28	4,741
1909.....	4,090	209	84	15	44	4,442
1910.....	4,113	179	114	16	14	4,436

Of the 4,436 medical graduates, 680, or 15.3 per cent., were reported to hold also degrees in arts or science, as compared with 15.6 per cent. in 1909 and 17.3 per cent. in 1908. Although, in recent reports on medical education, Illinois is referred to in rather uncomplimentary terms on account of its having a number of inferior medical schools, this clearly does not apply to all the Illinois colleges, since of the 680 medical graduates holding collegiate degrees, 133, or about 20 per cent., came from Illinois colleges. It is expected that in the future the percentage of college graduates entering medicine will increase rather than decrease, since more medical schools are requiring some college work for admission.

WOMEN IN MEDICINE

During the past year there were 907 women studying medicine, a decrease of 14 below 1909, but an increase of 72 over 1908. The percentage of all medical students

was 4.2, the same as last year. There were 157 women graduates this year, or 3.5 per cent., of all graduates. In 1909 there were 921 women students and 162 graduates, while in 1908 there were 835 women students and 185 graduates. Of all the women matriculants, 155 (17.1 per cent.) were in attendance at the 3 medical colleges for women, as compared with 169 (18.4 per cent.) in 1909 and 186 (22.3 per cent.) in 1908. From the 3 women's colleges, there were 41, or 26.1 per cent., of all women graduates, as compared with 33 (20.3 per cent.) in 1909 and 46 (24.9 per cent.) in 1908. The remaining 752 (82.9 per cent.) were matriculated in coeducational colleges.

TABLE 6.—WOMEN IN MEDICINE

Year.	Total women students.	Percentage of all students, both sexes.	Total women graduates.	Percentage of Grads., both sexes.	Women's colleges.	Students.	Percentage of all women students	Graduates.	Percentage of all women graduates.	Co-ed. schools.	Students.	Percentage of women students.	Graduates.	Percentage of all women graduates.
1904	1,129	4.3	244	4.0	3	183	16.2	56	23.0	97	946	83.8	198	77.0
1905	1,073	4.1	219	4.0	3	221	20.6	54	24.5	96	852	79.4	165	75.5
1906	895	3.5	233	4.3	3	189	21.0	33	14.1	90	706	79.0	200	85.9
1907	928	3.8	211	4.2	3	210	22.6	39	18.5	86	718	77.4	172	81.5
1908	835	3.7	185	3.9	3	186	22.3	46	24.9	88	649	77.7	139	75.1
1909	921	4.2	162	3.7	3	169	18.4	33	20.3	91	752	81.6	129	79.7
1910	907	4.2	157	3.5	3	155	17.1	41	26.1	82	752	82.9	116	73.9

NUMBER OF COLLEGES

Since June 30, 1909, 12 colleges (mentioned on page 691) have either suspended or have merged into others and 1 new college was established, making a net decrease of 11 colleges since last year, the total now being 133. The regular colleges number 111, a decrease of 6 since last year. The homeopathic colleges number 13, a decrease of 1. Of the eclectic colleges, 1 was reorganized recently as a regular college, leaving 7. There is now only 1 physiomedical college and 1 school which is unclassifiable since it offers to teach two or more systems of medicine.

TABLE 7.—MEDICAL COLLEGES

Year.	Regular.	Homeopathic.	Eclectic.	Physio-Med.	Nondescript.	Total.
1880	72	12	6	..	..	90
1890	93	14	9	..	..	116
1900	121	22	8	..	..	151
1901	124	21	10	2	2	159
1902	121	20	10	3	1	155
1903	121	19	10	3	1	154
1904	133	19	10	3	1	166
1905	129	18	9	3	1	160
1906	130	18	9	3	1	161
1907	131	17	8	3	2	161
1908	123	16	8	2	3	152
1909	117	14	8	2	3	144
1910	111	13	7	1	1	133

During the past ten years, 70 medical colleges (see page 691) have ceased to exist, either through merger or otherwise. During the same time, however, 50 new colleges have been organized, leaving a net decrease of 20. While the total number of colleges is smaller, the percentage of higher-grade, stronger medical colleges has been considerably increased.

LENGTH OF TERMS

The length of term of each college fluctuates somewhat from year to year, but on the whole, during the last several years there has been a decided lengthening of college terms. This has reference to the weeks of actual work, inclusive of holidays. Only 2 colleges this year report sessions shorter than twenty-seven weeks, as compared with 4 last year. In 1901 there were 58 which held sessions of less than twenty-seven weeks. Of those having sessions of twenty-seven or twenty-eight weeks, the number is 8 this year, or 9 less than last year, and 38 less than in 1903. There are 19 colleges claiming courses of twenty-nine or thirty weeks of actual work, and 42 claiming courses of thirty-one or thirty-two weeks. One hundred and two, or over 76 per cent., of all colleges now claim to require from 31 to 36 weeks of actual work, exclusive of holidays, as compared with 30 per cent. in 1901, with 42 per cent. in 1904, and 68 per cent. last year. The 2 colleges claiming courses longer than thirty-six weeks are night schools. It would doubtless require twelve or fourteen years of the usual night-school study, however, to secure the equivalent of four years of thirty weeks each in the better day colleges.

TABLE 8.—COLLEGE TERMS

Year.	23 to 26 weeks.		27 to 28 weeks.		29 to 30 weeks.		31 to 32 weeks.		33 to 34 weeks.		35 to 36 weeks.		Ov. 36 weeks.	
	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.
1901	58	36.5	42	26.4	8	5.0	26	16.4	4	2.5	18	11.3	3	1.9
1902	44	28.4	44	28.4	11	7.1	33	21.3	3	1.9	18	11.6	2	1.3
1903	33	21.4	46	29.9	15	9.7	37	24.0	2	1.3	19	12.4	2	1.3
1904	27	16.3	44	26.5	22	13.3	37	22.3	13	7.8	20	12.0	3	1.8
1905	15	9.4	35	21.8	12	7.5	44	27.5	13	8.1	38	23.8	3	1.9
1906	14	8.7	35	21.7	26	16.1	32	19.9	24	14.9	28	17.4	2	1.3
1907	6	3.7	27	16.8	26	16.1	42	26.1	29	18.0	29	18.0	2	1.3
1908	2	1.3	21	13.8	28	18.4	51	33.6	24	15.8	22	14.5	4	2.6
1909	4	2.3	17	11.6	23	16.4	51	34.9	18	12.3	30	20.5	3	2.0
1910	2	1.5	8	6.0	19	14.3	42	31.5	30	22.6	30	22.6	2	1.5

TUITION AND OTHER FEES

Special attention is called in Table 1 to the total amount charged by the various colleges for tuition, matriculation, laboratory and graduation fees *per annum* for each student. In Table 9, the 133 colleges have been grouped according to the amount of fees charged.

TABLE 9.—COLLEGE FEES

Total Fees.	Number of Colleges.			
	Class A.*	Class B.	Class C.	Total.
$ 50 or less	5	1	1	7
50 to $ 75	9	..	3	12
75 to 100	5	7	15	27
100 to 125	17	14	6	37
125 to 150	18	4	3	25
150 to 175	8	3	..	11
175 to 200	6	2	..	8
200 or above	6	..	..	6

* Based on the classification of medical colleges prepared by the Council on Medical Education.

Nineteen charge fees of $75 or less per year, 64 colleges charge between $75 and $125, 36 charge between $125 and $175, and 14 colleges charge above $175. Of

the 19 colleges charging $75 or less, 14 or 74 per cent. have been listed among Class A (acceptable) colleges by the Council on Medical Education.[1] Among these colleges are the schools of medicine of the state universities of Colorado, Iowa, Mississippi, Missouri, North Carolina, North Dakota, South Dakota, Utah and West Virginia. On the other hand, 24 colleges listed by the Council in Class C charge fees of over $100 per year for each student. This clearly refutes the assertion made by some inferior colleges that they are needed for the sake of "the poor boy who wants to study medicine." Although 20 colleges listed in Class A charge fees ranging from $150 to $275 per year for each student, the actual expense for teaching that student in these colleges ranges from $300 to $600 or even more per year.

DISTRIBUTION OF MEDICAL STUDENTS

Table 2, on pages 686 to 689, shows from what states the students come who were in attendance at each medical college during the session of 1909-10. The influence of the proximity of the medical school is seen in the fact that states having medical colleges contribute more students in proportion to the population than those which have no colleges. A comparison of this table with the large tables based on state board examinations[2] which show the distribution of the alumni of each college, is interesting. The college which has widely distributed alumni usually has a student body from an equally large number of states.

Only one state contributed over 2,000 students this year, this being New York with 2,120. Pennsylvania contributed 1,990 and Illinois 1,959. The next states, in the order of the number of students contributed, are: Ohio, 902; Massachusetts, 809; Missouri, 807; Texas, 719, and Iowa, 702. Four states had less than 20 each, these being New Mexico and Wyoming, each 11, Nevada 6 and Arizona 5. There were 54 students from Hawaii, Porto Rico and the Philippine Islands, and 563 students from foreign countries.

MIGRATION OF MEDICAL STUDENTS

Table 3, on page 690, shows the number of students of each section of the country who attended medical schools of that section and the number who attended medical colleges of other sections. Section A gives the figures for students from the eastern states; Section B, for students from the middle states; Section C, for students from the western states, and Section D, for students from the southern states. Figures are given for the three college years, 1907-8, 1908-9 and 1909-10. The differences in the figures for the three years show the fluctuation due to the exit of the graduating classes, to the ingress of the new freshmen and to the comparatively few who left the colleges of one section and went to those of other sections. At the bottom of Section D appear the average totals for the three years. Percentages are given in order to permit of comparisons. The eastern section has long held the largest place in medical education, and, as would be expected, still has the smallest percentage of students leaving to attend colleges in other sections, the percentage of those remaining in the eastern section being 92.1. The middle states are a close second, with 90.6 per cent. of their own resident students studying medicine in that section. The western section, having the smallest number of colleges, naturally has a larger proportion of students attending in other sections. Of the students who migrate from the middle and southern sections, the largest proportions go east, while of those from the western section, the largest proportion attends colleges of the middle section. Altogether 2,555 students attended colleges outside of the section in which they lived. Of this number, 1,092, or 42.7 per cent., went to the eastern section; 1,020, or 39.9 per cent., went to the middle section; 304, or 11.9 per cent., went to the southern section, and 139, or 5.5 per cent., went to the western section.

THE YEAR IN MEDICAL EDUCATION

The special features of the past year in medical education have been the publication of a classified list of medical colleges by the Council on Medical Education after a six years' investigation, and the publication of the report on medical education by the Carnegie Foundation for the Advancement of Teaching. The report of the Carnegie Foundation, which is more severe than that of the Council, bears out the claim of the latter that its markings were very lenient. The publication of these two reports is sure to result in good to medical education. Prospective medical students now have the information that will enable them to select the better colleges, and, therefore, colleges which adhere to reasonably high standards, and are fairly well equipped, will be benefited. These reports show how each college ranks as compared with other colleges; the needed improvements have been pointed out and the way has been opened for further development.

A survey of the entire field of medical education shows that marked progress has been made during the last few years. As is noted in another column,[3] there are 35 colleges which after this fall will be requiring one or more years of collegiate work for admission, and eight state licensing boards which have adopted similar requirements. Numerous mergers of medical colleges have been brought about, better equipped laboratories have been provided, better trained teachers have been employed, new buildings have been erected and increased endowments secured. The outlook for the future of medical education in this country is indeed most encouraging.

1. For complete classification see THE JOURNAL A. M. A., June 18, 1910, pp. 2061 and 2062.
2. THE JOURNAL A. M. A., May 21, 1910, p. 1740.
3. Pages 680 and 681.

ANOTHER MEDICAL JOURNAL PREFERS DECENCY TO DOLLARS

The medical journal which, being the official organ of either a state or national organization and having the financial and moral support of the organized profession it represents, decides to throw out the advertisements of all preparations exploited dishonestly and untruthfully, deserves credit. The owners of a medical journal who, at the height of a campaign for clean advertising, when enthusiasm runs high and before the experiment has been tried out, decide to do the same thing, deserve even greater credit—although the spectacular element tends to qualify it. But the owners of a medical journal who, after seeing the experiment tried—with disastrous results in many cases—and knowing the terrific struggle for a journal's mere existence which such a course entails, soberly and calculatingly determine to eliminate from their advertising pages all unworthy medicinal products—such men are making a sacrifice in the interests of truth and decency that is truly heroic.

While this movement for honest advertising of medicinal products is confined to no one section of the country, yet the South seems to be leading. No fewer than three southern medical journals have placed themselves in this class. Two of these[1] have already been referred to in THE JOURNAL. The latest one to cross the Rubicon is the *Gulf States Journal of Medicine and Surgery*, which in its June issue states the case in plain, unmistakable terms. After reviewing briefly the sphere which their journal is attempting to fill, the editors say:

> We have reached the conclusion that the only way to be absolutely sure to admit no unworthy proprietary medicine advertisement, and that those we do admit will be precisely as advertised, is to accept as final the conclusions of the Council on Pharmacy and Chemistry established by the American Medical Association, and be guided thereby. There can be no doubt of its sincerity. It has done an immense amount of investigation and analysis, and though, being human, it doubtless errs sometimes, yet its opportunities for forming sound opinions exceed by far any other ways at our disposal. Their conclusions, like those of the highest courts of review, are the soundest obtainable.

Then follows this announcement in ten-point capitals:

> From this date the *Gulf States Journal of Medicine and Surgery*, journal of the Southern Medical Association, will neither make nor renew a contract for advertising any proprietary medicine which is not recognized by the aforesaid Council.

The editors of this journal are evidently under no delusion as to what such a step means; they realize that to reject 50 per cent. of their present advertising patronage is not a thing to be looked at lightly. They say:

> We know what we are doing. We are aware that no medical journal can be self-sustaining without a large advertising list. We know that this step may be the first towards failure. But if we cannot publish a journal whose readers will know that whatever its editors or advertisers say is untainted with either deceit or fraud, without going down in failure, then down we will go! There is no dishonor in such a failure! But we shall not fail! Southern doctors want the sort of medical magazine that we desire to supply, and they will stand up to us through this fight. As rapidly as the circumstances will admit, our readers will observe the change in our advertising pages.
>
> Sink or swim, survive or perish, we have planted the standard of the *Journal* on the heights, and shall stand by it.

The problem is now "up to" the medical profession of the South. We believe that a section of the country which produces such editors as these also produces men who will support the principles these editors stand for. The South, in leading the country in this fight for decency and truth, has merely lived up to its traditions; and we believe that, in placing principles before pelf and conscience before commercialism, it is putting itself in the vanguard of journalistic progress. We would urge every physician to show in a concrete way his appreciation of the stand that has been taken. Subscribe for these journals[2]; a large and influential subscription list assures a liberal advertising patronage and this in turn makes possible a virile and aggressive journal.

The time has come when the medical profession must wake up to a fact that it has very largely ignored in the past: It costs money to publish a medical journal. If physicians—in whose interests these journals are published—are not willing to support them, the proprietary people stand ready to relieve physicians of the necessity of doing so. But—and this is the crux of the whole matter—the journals will naturally favor, and advocate if necessary, the interests from which they receive their chief support. If the medical profession wants really independent medical journals—independent of all interests except those they are supposed to represent—it must pay for them.

VISUAL TESTS AND THE PUBLIC SERVICES OF THE UNITED STATES

The prevention of accidents in connection with transportation systems is an important subject for the attention of the medical profession. Owing to the rapid growth of the country the railroad trackage and the system of waterways have grown almost beyond belief. As one result, the regulation of a number of details looking to the protection of the public has not as yet received that attention which its relative importance deserves. Such progress as has been made is largely due to the labors of committees appointed by the American Medical Association and its sections. As an instance the Section on Opthalmology of the American Medical Association, through a committee, devoted several years to the accumulation of statistics gathered from the important railways of this country, and finally adopted a set of well-matured resolutions embodying rules to govern the visual and hearing tests of transportation employees which were approved by the House

1. The Southern Medical Journal and the Old Dominion Journal of Medicine and Surgery. The former now has but one advertisement to which objection can be raised, while the latter has but two.

2. The Gulf States Journal of Medicine and Surgery, 905 Van Antwerp Bldg., Mobile, Ala., $2.00 a year; the Southern Medical Journal, 150 Fourth Avenue North, Nashville, Tenn., $2.00 a year; the Old Dominion Journal of Medicine and Surgery, 116 East Franklin Street, Richmond, Va., $2.00 a year.

of Delegates. The regulations they suggested have been adopted by practically all the leading railroads.

In line with this work the chairman in his address[1] before the Section on Ophthalmology at St. Louis, after investigation, reviewed the visual requirements in branches of the public service in which definite standards of vision are essential. These are, chiefly, the United States Army, United States military and naval academies, mercantile marine, the Revenue Cutter Service, the life-saving department, the officials of the Coast and Geodetic Survey and pilots in both the federal and some of the state and municipal services.

One result of this activity was definitely to draw the attention of the War Department to the matter. The Surgeon-General of the Army has appointed a commission, including the chairman of the Section on Ophthalmology, to draft a new series of visual requirements for the United States Army. After careful consideration of the subject and after comparison with standards now in operation in the British and Continental services, the commission drew up a series of requirements that will shortly be submitted for the approval of the General Staff.

In the course of the inquiry into the legal requirements as to vision of mercantile marine pilots it was discovered that only officers of steamers and sailing vessels over 700 tons gross and of vessels over 100 tons carrying passengers are under federal supervision. Bar or branch pilots, as they are called, are under state and municipal authority only. In all sections of these services even the meager rules applicable to vision and to visual tests were honored rather in the breach than in the observance. The Surgeon-General of the Marine-Hospital Service, however, has arranged to apply the proper tests and to request the Department of Commerce and Labor, whose function it is to create proper standards for the purpose, to authorize a thorough examination of the sight of applicants for employment in any branch of this service.

This agitation for improved precautionary measures in our merchant marine will, doubtless, exert a beneficial influence on the pilot service of the various states and municipalities. As Dr. Posey shows, there is much room for improvement. The spectacle of a color-blind or short-sighted officer of a sailing or other vessel practicing his profession in a crowded harbor is far from reassuring. Indeed, a number of disasters at sea directly attributable to defective eyesight of the pilot in charge, were cited in the address.

The visual requirements of officials in the other departments of the public service were, with few exceptions, also found to be inadequate.

With these facts before them the Section on Ophthalmology and the House of Delegates adopted resolutions recommending that a committee be appointed to confer with the Department of Commerce and Labor and with the Marine-Hospital authorities, with a view to establishing proper visual standards and tests to govern these public servants. When this committee has ended its labors we shall not be, as we now are, exposed to the accusation that the United States lags behind other governments in the protection of its seafaring population.

1. Posey, W. C.: Visual Requirements in the Public Services of the United States, THE JOURNAL A. M. A., Aug. 13, 1910, p. 548.

DOCTORS OF PUBLIC HEALTH (D.P.H.)

While much interest is taken and a vast amount of good work is being done in public health matters, yet we have only recently begun to recognize that such work requires the services of a specialist. And while the courses in our medical schools have been gradually lengthened to include training in bacteriology, in the examination of the blood, the secretions and excretions, as well as more or less instruction in hygiene and sanitation, yet our country lacks trained men to carry on public health work. As a rule the general practitioner or the physician who has had the modern medical training, while immeasurably superior to the mere political henchman, has not measured up to the possibilities of the situation as a sanitarian. There have been notable exceptions to this, but they merely point to the rule; and our failure to reap the full harvest in the field of preventive medicine is due to a considerable extent to this cause. The sanitary sciences have given us many new and useful facts, and present health organizations are daily collecting in their reports much valuable information; and still the field, though fitfully tilled by the kind-hearted philanthropist, by the faddist and by the reformer, is permitted to lie fallow most of the time for want of trained experts to make the practical application.

For years the more enlightened nations, with the exception of our own, have required of their health officers special fitness and training for public health work. In the United States, however, no such provision has been required; in fact, no professional school has so far been in a position to equip men with the special knowledge such work demands. To meet this Harvard has taken an advanced step in offering a degree of Doctor of Public Health (D.P.H.), the work for which will center about the new Department of Preventive Medicine and Hygiene. The new degree is a most practical one; it should prove attractive and will, we hope, be offered soon by other schools.

The new course offers wide opportunity for training in several specialized fields of public health work or the sanitary sciences. The course should qualify those who complete it to continue in research, if their temperament and inclinations fit them for original work; to teach the subject, provided they have the gift of pedagogy, or to administer public health affairs provided they have executive ability. Undoubtedly there is a demand for well-trained health officers. The political health

officer is an anachronism, and the day when the gynecologist, the surgeon or the general practitioner, without special training, can successfully take charge of the health of the state is passing away. A board of health composed of untrained men of business or professional affairs is no longer compatible with the increase of special knowledge. The complications of modern life demand acquaintance with this special knowledge, and we welcome this latest addition to the fellowship of the learned and useful professions.

THE PURIFICATION OF WATER BY HYPOCHLORITES

A large variety of chemical substances have been used in experiments on water purification and a few of them have found their way into practical use. We have several times discussed the employment of ozone in the treatment of public water-supplies and have noted that the relatively high expense and the difficulty of securing uniform production are obstacles to the general introduction of the ozone process on a large scale. Recent experience with other methods of water disinfection is, however, more promising.

In sewage disinfection the use of bleaching-powder, an impure product composed largely of calcium hypochlorites, has been studied rather extensively in Germany, and has been the subject of excellent experimental work by Phelps[1] in this country at Red Bank, N. J., and at Baltimore. It was but a step to apply a similar treatment to polluted drinking-water. Already in 1897 bleaching-powder had been used for this purpose in Maidstone, England, at the time of a typhoid epidemic due to a polluted water-supply. The use of bleaching-powder for the purification of the Jersey City water-supply in 1908-9 drew further attention to the process and was the starting-point of the greatly accentuated interest in this subject that has been shown during the past year. The construction and operation of the disinfecting plant were intrusted to a firm of sanitary experts and their report has been received with merited confidence. The degree of purification effected may be judged from the fact that while the number of bacteria in the raw water ranged from 30 up to 1,600 the treated water contained an average of but 15, and in only one sample out of 455 tests was *Bacillus coli* found in the water delivered.

It is not surprising that results like these have given a strong impetus to the use of the bleaching-powder treatment. A number of American cities have already employed the hypochlorite treatment on a large scale. Among these are Harrisburg, Pa., and Quincy, Ill., where the process has been used in conjunction with the application of coagulants and mechanical filtration. Minneapolis, Montreal, Toronto, and recently Milwaukee have made use of the treatment to check outbreaks of water-borne typhoid fever. The rapid spread of this method of water purification is indeed one of the most interesting and promising developments of the past two years. Up to the present the method has seemed to grow in favor. The great simplicity of the apparatus necessary for applying the disinfectant makes it possible in an emergency to install a small plant within a few days. The exceedingly low cost of the process, which seems to average less than 40 cents per 1,000,000 gallons, constitutes another important advantage. Thus far no serious objection has been brought against the hypochlorite treatment and there has been a surprising unanimity of favorable judgment from all who have had personal experience with it. If we must have sewage in our water, let us disinfect it before drinking.

1. Phelps: Water-Supply Paper 229, U. S. Geol. Survey, 1909.

Current Comment

A HITHERTO UNPUBLISHED TESTIMONIAL

A layman writes to THE JOURNAL asking whether the "D.D.D. Prescription" would have any injurious effect on a person using it and says, regarding this nostrum:

> "Have used forty-eight bottles of it for eczema and am not rid of it yet."

He wants to know, "whether this medicine could have a tendency to poison one's blood so that one would lose 14 pounds in flesh and become weak and emaciated, flesh soft and flabby and his condition generally miserable, within two months." As this "dandruff cure" contains 38 per cent. of alcohol and 7 grains of chloral hydrate to the ounce, an affirmative answer to our correspondent's query can hardly be called overdrawn. For a product which, before the Food and Drugs Act made lying on the label illegal, was advertised to "positively and permanently cure eczema," its therapeutic action seems rather slow. Would the manufacturers recommend a change in treatment or another round of 48 bottles? In the words of Jack London: "We are curious to know. We are curious to know."

THE UNTRAINED DOCTOR AND THE PUBLIC HEALTH

An editorial with the above caption appeared in the Chicago *Examiner*, August 12, 1910. This paper had published lists of the graduates of several low-grade medical schools of Chicago, who were practicing in Illinois. One of these graduates wrote to the paper expressing "surprise that a newspaper which has always taken the part of the common people against the trusts," should "make common cause with those who are attempting to create a trust in medical education," and saying that "the right to change one's occupation is one of the blessings which free men enjoy, and a man who has been successful in other lines is just as likely to make a successful medical man; and even if he had been a failure in his previous occupation, it would not prove him a failure in the profession he now follows." The newspaper answered that although it acknowledged the fairness of the doctor's argument

and would not think of singling him out to be held up to public distrust, nevertheless it "does not wish its well-known attitude toward the trusts and the people to be confounded with its desire to throw safeguards around the practice of medicine, and it does not subscribe to the doctrine that a shoemaker must invariably stick to his last." The *Examiner* then continues:

> Every man is entitled to change his profession as his inclinations and his talents may dictate. But every man is not entitled to enter boldly on the practice of medicine, merely because he has a leaning that way, has given it a little desultory study, and boasts a diploma that has been obtained by questionable methods or by answering a few stereotyped questions. If there is a trust that keeps incompetent people from fooling with the health and lives of the people, the *Examiner* is for that trust, whatever or wherever it may be.
>
> If there are, here and there, men whose remarkable talents have enabled them to rise to deserved eminence in the medical profession without the full medical instruction and preparation considered safe in the practice, there are unhappily hundreds of others who are totally unqualified and unfit for the trust that is reposed in them. And the *Examiner* comes not to call the righteous but sinners to repentance, the sinners being to a notorious extent the so-called graduates of this meager and inadequate course of training.
>
> And so the *Examiner* renews its politest and sincerest assurances of esteem to all who have changed their professions for other lines of duty and the world's work for which they have been properly prepared and qualified. And it will continue to stand for the exercise of the privilege of restraining ignorance, incompetency and lack of preparation in those who jeopardize human health and endanger human happiness for a mere whim or because it seems a little more profitable to the practitioner. If "a little knowledge is a dangerous thing" it is never more dangerous than in experimenting with the art of healing.

THE DANGER OF WOOD ALCOHOL

It has been pretty well understood that wood alcohol is decidedly unsafe to drink; that even its vapor may jeopardize the eye-sight. To the medical profession especially has this danger been emphasized by the excellent researches of Buller and Wood, which were published in THE JOURNAL. Now comes Mueller, the German physiologist, who says that pure methyl alcohol is little more poisonous than ethyl alcohol; that it is the impurities which make methyl alcohol poisonous. It is stated that no systematic experiments have heretofore been made to determine the toxic qualities. The deductions of Mueller do not make methyl alcohol any more safe, but they may lead to a method by which it can be manufactured more free from the impurities referred to. One way of stating the case might be that methyl alcohol is naturally denatured in the process of manufacture.

ABATING THE FLY NUISANCE

The domestic or "typhoid" fly is at present receiving much deserved attention on the part of health boards, the newspapers and the public, all of whom seem to be taking the advice to "swat the fly" whenever he raises his pestiferous head. The determination to exterminate this disease-carrier is becoming strong and it will soon be considered as much of a family disgrace to have flies about the house as it now is to have bedbugs. In addition to inhibiting the multiplication of flies by destroying their breeding-places, a further means has been noted. Dr. Percy L. Jones, of the Army Medical Corps, reports that flies are comparatively rare in the Philippines because of a species of ant which greedily devours the larvæ of the fly, and he has seen them carry away the pupæ. If this ant has no pernicious habits or qualities as obnoxious as those of the fly, the species might be imported and put to work. Entomologists have found that there are many parasites that prey on the fly, principally in the pupal stage, but evidently they are not widely distributed or numerous enough to produce an abatement of the nuisance.

A RIGHTEOUS NEWSPAPER

Not all metropolitan newspapers put the welfare of their readers above the almighty dollar, but the Chicago *Tribune* is one that is doing this. Some years ago it barred from its columns all medical advertisements that it considered fraudulent. During the current week it has boldly published the names of certain "patent medicines" that are dangerous to infants because of the opiates contained in them. Taking the report of Dr. Kebler of the Bureau of Chemistry as its authority, it prints in blackfaced letters the names of the nostrums that are condemned as unsafe, and in addition to publishing this list in several consecutive issues, it has emphasized the matter editorially. McCutcheon aids in damning these deadly nostrums in a forceful cartoon, one picture representing the "quack" or the thoughtless dealer with a bottle of soothing syrup in his hand, saying, "That will make it stop crying; 50 cents, please;" the other representing the sequel—the mother weeping over an empty cradle. What a change would result if even one paper in each large city had the courage to do as the *Tribune* has done in this instance.

FLORENCE NIGHTINGALE

The death of Florence Nightingale at the age of ninety removes one of the most striking figures of the nineteenth century. Born to wealth and luxury, she early showed a taste for the work to which she later gave her life and lost no opportunity of visiting hospitals and studying the care and nursing of the sick. At that time the profession of nursing was not at all a fashionable occupation and had little attraction for a refined and educated lady. As one of Miss Nightingale's biographers has said, it was considered to be a profession which no decent woman of any rank could follow. In spite of this, after examining all the nursing institutions available to her in her own country she went to the Hospital of the Protestant Sisters of Mercy at Kaiserswerth, Germany, and later to the Sisters of St. Vincent de Paul in Paris. When the Crimean War broke out military nursing was practically an unknown art and anyone who has read William H. Russel's account of conditions in the British hospitals near the seat of war can see how different they were from those of modern days. Miss Nightingale's project was spoken of as an undertaking wholly new to English customs. Her work in the hospitals of Scutari and Balaklava was

pioneer work in nursing in military hospitals, but she showed such capacity for management in spite of specially difficult conditions that she made it a success. Modern military nursing, among English-speaking peoples at least, owes its origin to Florence Nightingale. She captured English opinion in spite of the prejudice of a nation which is none too ready to take up with novelties of any kind, and her name has become a household word. Though after the war she was an invalid, her activities did not cease; she was constantly consulted in all matters of nursing for fifty years or more and her writings and utterances have carried weight wherever the English language is spoken. Her advice was sought and taken in hospital construction during our Civil War and during the Franco-Prussian war, and many of the plans for the building and organization of hospitals in England passed through her hands. The training schools for nurses which she established at St. Thomas' Hospital and King's College Hospital in London have been the models for all similar institutions since established in Great Britain and America. As a writer on sanitary subjects she was clear and incisive and her opinions always carried weight. She had also a special capacity for condensing the facts and verbiage of government reports and stating in brief space the important matter they contained. Though little before the public eye, and never courting publicity, but rather avoiding it, she was sought out and honored by the greatest personages in her own country and was the only woman on whom has been conferred the "Order of Merit." It is said that she was always accessible to the workers in the institutions which she founded and always took the liveliest interest in them. Hardly any one of her countrywomen has done work more effective for good or has left behind her a choicer memory.

Medical News

CALIFORNIA

Fighting Tuberculosis in Schools.—The superintendent of the Oakland schools has inaugurated a system of breathing exercises among the pupils with the view of increasing their lung expansion. Some remarkable results have been attained. Not only has the general average of the lung expansion of the pupils been increased but in some instances the expansion has reached six to seven inches. It is found that the girls respond more readily to these exercises than the boys and that the white children show far better results than the Chinese, Japanese or negroes.

Hospitals.—The contract has been let for the construction of five new ward buildings, an administration building and nurses' home for the new public hospital at San Francisco. The cost of the work will be approximately $220,000. The material used will be brick, marble and terra cotta.——Building has commenced on the hospital at Hanford.——The staff of the Berkeley Dispensary has been made up as follows: Drs. Frank W. Edmonds, Robert Hector, Frank Simpson, Fred H. Van Tassell, Thomas C. McCleave, Romilda Paroni, Wilbur A. Sawyer, Florence Sylvester, John U. Force, May H. Sampson, Edith S. Brownsill and E. B. Hoag.

Personal.—Dr. Anderson, San Francisco, has been made assistant surgeon by the Northwestern Pacific Railroad Company, stationed at the Bryan Bluff Receiving Hospital.——Dr. Frank R. Dray has been appointed chief medical officer of the German Hospital Association at San Francisco.——Dr. Howard W. Levengood, Ocean Park, has been appointed professor of state medicine and hygiene in the College of Physicians and Surgeons, University of Southern California.——Dr. E. W. Parsons has resigned from the Emergency Hospital, San Francisco, and will be succeeded by Dr. Fred H. Zumwalt.——Dr. James M. Gassaway, surgeon in charge of the United States Marine Hospital, San Francisco, was injured in a street car accident, sustaining fractures of the pelvis, one rib and one leg in two places.

FLORIDA

New Hospital.—The new Mission Hospital was recently opened at Pensacola. A staff of twenty-two of the leading physicians of Pensacola was appointed, with Dr. Juriah H. Pierpont as chairman of the medical board.

Enforcing Health Ordinances.—City Health Officer Charles E. Terry, Jacksonville, has invoked the assistance of the police in enforcing the city health ordinance relative to the protection of meat, fish, fruit and vegetables from flies and other insects. The dealers are required to protect these articles by screens.

Branch Laboratory.—The state board of health has opened a branch laboratory in Pensacola, and has placed in charge Dr. F. A. Brink, formerly of North Dakota. The establishment of the laboratory will materially aid the profession in that section of the state in their crusade against communicable diseases, especially hookworm and tuberculosis.

Appointment of Visiting Staff.—At the recent meeting of the Board of Commissioners of State Institutions at Tallahassee, on the recommendation of B. F. Whitner, superintendent of the Florida Hospital for the Insane, the following physicians were named on the visiting staff: Drs. Gerry R. Holden, Jacksonville; James H. Randolph, Chattahoochee; Clarence E. Hutchinson, Pensacola; Henry E. Palmer, Tallahassee, and Urban S. Bird, Tampa.

Crusade Against Malaria.—At the annual meeting of the State Medical Society, held in Jacksonville last April, a special committee was appointed to inaugurate a campaign throughout the state against malaria. This committee has issued an address to the people of the state stating that the first step in the campaign is to secure the cooperation of the public and that heretofore those interested in public health had not been supported. The committee in its address then says:

> To accomplish this end, there will appear in the daily press of the state, a series of bulletins, issued at certain intervals, for the purpose of educating the public on the damage done to the state as a result of malaria, the extent to which the disease prevails, how the infection is carried from person to person, correcting the many false impressions concerning its transmission, showing how little decrease there has been in the disease during the past decade in this and other southern states, what has been accomplished in other parts of the world during the same period, as a result of a properly organized campaign, and finally, a summary of how it is possible to entirely eradicate the infection from our South, if the people generally will aid in every way they can.

The committee is composed of Drs. Graham E. Henson, E. VanHood and Edmund W. Warren. They have issued Bulletin 1, which has been published in the newspapers throughout the state, in which they state the situation in regard to malaria. They say that from two hundred to four hundred lives are offered as sacrifices to malaria in the state every year, equal to an annual cash loss of $800,000, estimating the value of each life at $2,000. In addition to that, the loss in wages, cost of attendance, drugs, etc., amounts to $400,000 more.

ILLINOIS

Evanston's Health Record.—Evanston claims to be the healthiest city in the state, the death rate for the past year being reported as only nine per 1,000 of population.

New Hospital.—Plans for the new $50,000 Methodist Hospital at Peoria have been completed and bids asked for. The plans provide for a four-story building in the renaissance style, 70 by 80 feet. The kitchen will be placed on the top floor.

School Boards and Medical Inspection.—At Rockford, Corporation Counsel Rew has rendered an opinion that inspection of school children must be done under the supervision of the city health department instead of the school board, and that the board of education cannot legally provide for medical inspection. It is said that State Attorney-General Stead and State Superintendent Blair hold the same opinion.

Chicago

New Emergency Wards.—Since the abandonment of the old Harrison Street Emergency Hospital, two rooms have been fitted up in the Harrison Street Police Station for emergency hospital purposes, in charge of Drs. Charles D. and Clarence

H. Wall. As many as ten to fifteen minor surgical cases have been cared for each day since.

Personal.—Dr. and Mrs. Isaac A. Abt sail for Europe August 20 to be gone until November.——Dr. George Sultan has become a candidate for county commissioner of Cook County. His candidacy is endorsed by many leading physicians.——Dr. Milton J. Rosenau, professor of pathology in Harvard University Medical School, is to deliver the Harris Lectures for 1912 at Northwestern University. These lectures were established by the gift of Mr. Norman W. Harris. ——Dr. B. Georgas is convalescing from appendicitis at Lincoln Hospital.——Dr. B. C. Corbus has gone to Berlin to investigate the new Ehrlich treatment.

Funds for Tuberculosis Institute.—The Chicago Tuberculosis Institute is endeavoring to raise a midsummer fund of $2,500 with which to support the work until fall. The eight free tuberculosis dispensaries are handling from twenty to sixty patients a day. Every month about 240 new cases are examined, and the eleven nurses are making nearly 1,700 visits a month in homes of the patients. In addition three of the nurses devote a portion of their time to three open air schools for anemic children maintained at the Libby School, Penn School and Lake View High School. There are 35 children in each school.

Health Conditions.—For the first time during the summer the weekly death rate in the city was below that of last year, for the week ending August 13 the rate being 13.6 per 1,000 as against 13.9. Diphtheria was unusually prevalent, there being 79 new cases as against 49 for the corresponding week of last year, with 8 deaths as against 4 last year. The health commissioner, in addressing residents of the Twenty-ninth Ward, where sanitary conditions have been particularly bad, said "there is no such thing as a public standard until there is a proper standard of private living." Clean up day in the city was arranged for Tuesday, August 16, and was well observed.

IOWA

New Wing to University Hospital.—The state has purchased the Asa Moler property east of the present hospital site and will erect a new wing to the University Hospital.

Personal.—Dr. Campbell Howard, Montreal, Que., has accepted the chair of internal medicine at Iowa State University, Des Moines, and Dr. Erwin Schenck, Des Moines, has been made professor of skin diseases.

Visiting Nurses' Association.—At Burlington the work of the visiting nurses' association has been organized and Miss Augusta M. Jones, Moline, Ill., will have charge. Among those directing the work will be Drs. John C. Fleming and George B. Little.

Poliomyelitis.—About fifty cases of poliomyelitis have been reported from Mason City. Isolated cases have also been reported from other places. The State Board of Health held a conference August 17 to consider the best way of dealing with the disease.

Infant Mortality.—According to a statement of Dr. G. H. Sumner, secretary of the State Board of Health, one-third of the babies in Iowa under one year of age have died since the hot weather set in. The deaths are due principally to cholera infantum, infantile paralysis, poor milk and improper care. Cholera infantum and infantile paralysis have become so serious that the board has called a special convention of physicians throughout the state to discuss means of handling the situation.

KANSAS

Personal.—Dr. Seth A. Hammel, Topeka, has been appointed first lieutenant in the medical department of the Kansas National Guard, in the place of Dr. J. W. Graybill, Wichita.

Kansas City Health Board Changed.—Kansas City has passed an ordinance abolishing the old board of health and establishing a health department under a health commissioner, who is to be a graduate physician skilled in laboratory work. There will be in addition to the commissioner, three field men, a laboratory assistant and a clerk. It is hoped by this method to lessen the expense and at the same time attain a more efficient administration of health matters.

State Board on Poliomyelitis.—The July number of the *Bulletin of the Kansas State Board of Health*, aside from the table of vital statistics, is almost wholly taken up with an article on epidemic anterior poliomyelitis, a disease which prevails to some extent in Kansas. In addition to the symptomatology, course and pathology of the disease, the history of the present epidemic is given. The bulletin is illustrated with micro-photographs of sections of the spinal cord taken from fatal cases, and the whole bulletin makes a valuable contribution to the subject of infantile paralysis. The health board has issued to the people of Kansas a set of rules looking to the prophylaxis of poliomyelitis among the children.

MARYLAND

State Society Meeting.—The semi-annual meeting of the Medical and Chirurgical Faculty will be held at Annapolis, September 12-14. The Anne Arundel County Medical Society has appointed a committee to prepare for their entertainment. A joint meeting with the Maryland Psychiatric Society will be held. The membership of the state society now is 1,069. The publication committee estimates that the saving during the past year by the publication of the *Bulletin* has been about $700.

Baltimore

Report of Insane Hospital.—In the sixty-seventh annual report of Mount Hope Retreat, Dr. Charles G. Hill, physician-in-chief, gives the total number of patients treated last year as 985; 257 were discharged and 63 died. Dr. Hill discusses interestingly the causes and circumstances surrounding the insane.

Death from Rabies.—A child five years old died from rabies at Mercy Hospital, August 10. This is the fourth death of those treated at the Pasteur Institute in the eighteen years of its existence. The child was bitten with eight others May 23 last. There were two bites in her cheek. The other cases were all treated and are doing well.

Druggists and Soothing Syrups.—It is said that at the meeting of the Baltimore Retail Druggists' Association, to be held in September, the druggists will decide not to handle soothing syrups now fed to children by mothers. There is no law prohibiting their sale, unless they contain laudanum, and all do not contain it. Following the action of the government, many cities have already taken decided action in the matter.

Personal.—Dr. Alfred Whitehead is in the Berkshire Hills, Mass.——Dr. William S. Halstead has returned from Europe. ——Dr. Arthur P. Herring, secretary of the Lunacy Commission, is reported to have narrowly escaped drowning in the natatorium of the Hotel Chamberlin at Old Point Comfort, Va., August 7.——Dr. Andrew H. Whitridge was operated on for appendicitis early last week at Interlaken, Switzerland. ——Dr. Howard W. Jones has been sued for $10,000 damages for the death of a boy, alleged to be due to injury inflicted by the doctor's automobile.

MASSACHUSETTS

Typhoid in Worcester.—Twelve cases of typhoid fever have been reported in Worcester. It is said that all of the cases have been traced to the use of milk distributed by one dealer.

Open-Air School for Chlidren.—The gratifying experience of Boston's open-air school conducted last winter for tuberculous and anemic children has led the authorities to extend this plan for the coming winter.

Infantile Paralysis.—At Springfield, in view of the increasing death-rate from infantile paralysis, the local board of health has increased the quarantine period from two to four weeks. The disease has attacked a number of adults, and one death of an adult has occurred.

Preventing Blindness.—Dr. Mark W. Richardson, secretary of the state board of health, has been sending to every physician of the state a vial of 1 per cent. nitrate of silver solution to be used for the prevention of ophthalmia neonatorum, and has issued a circular giving suggestions as to its use.

Governor Approves Work of Physicians.—At the annual dinner of the Massachusetts Medical Society, in Boston, Governor Draper addressed the physicians and said: "I believe there is no profession which is bringing forward so many innovations for the benefit of mankind as this old and honorable profession of yours. Medicine has made bigger strides and developed more than any other profession."

Unsanitary Condition of River.—Protest has been made by citizens against the unsanitary condition of the upper section of the Charles River, including the Lower Falls and Upper Falls districts of the Metropolitan Park district. Concerted action will be taken by the citizens of the towns along the river to ask the next legislature to clean out the river and prevent further pollution by mills and factories.

Medical Inspection of Schools.—The board of health of Boston has submitted to the mayor a plan of reorganization

of the corps of medical inspectors in the public schools. By this plan the board of medical inspectors will be reduced from eighty to forty and the salaries increased from $200 to $1,000. In addition ten physicians will devote their entire time to infectious diseases, and the salary to be paid them will be $500 per year each.

Personal.—Dr. George D. Henderson has been appointed medical inspector at Holyoke. He will examine school pupils wishing to go to work.——Dr. Richard C. Cabot, Boston, was presented with a loving cup by the summer class at the Massachusetts General Hospital. Dr. and Mrs. Cabot entertained the class at their summer home at Cohasset.——Dr. William J. Brickley, Charlestown, has been given charge of the City Hospital relief station in Haymarket Square, Boston, to succeed Dr. Edwin L. Drowne.

New Child Labor Law.—The law passed by the last legislature providing that children between the ages of 14 and 16 must be inspected by a physician before going to work in factories, workshops or mercantile establishments went into effect August 1. The committee on medical inspection of the State Child Labor Committee has issued a statement calling the attention of the public to the new law. It is found that many minors in Massachusetts factories are in ill health and unfit to work.

MICHIGAN

Personal.—Dr. John H. Pettis, West Branch, has been appointed to a position in the State University at Ann Arbor.

New Emergency Hospital.—A new emergency hospital for contagious diseases will be erected at Flint, on the site of the present hospital, at a cost of $2,500.

Gift of Sanitarium.—C. W. Post, Battle Creek, has given to the Traders' and Workers' Association at Battle Creek the Phelps Sanitarium building erected several years ago at a cost of $400,000. It will be used for hospital purposes by the association.

Smallpox in Michigan.—Smallpox is prevalent in a number of places throughout the state at the present time. There has been one case reported from Mackinac Island and one or two suspected cases are being watched for developments. The disease is being taken care of by the local health authorities of the state, cooperating with the state board of health.

Work Against Tuberculosis.—The City of Kalamazoo has arranged to establish open-air schools for children with tuberculosis and for anemic pupils, who need plenty of fresh air. ——Muskegon has begun a poster campaign against tuberculosis by placing on billboards in various parts of the city posters nine feet high pointing out the essentials for the prevention of tuberculosis. According to Secretary Murray of the State Board of Corrections and Charities a great deal of tuberculosis exists in the county infirmaries, jails and other public institutions, and the situation calls loudly for relief.

NEW YORK

De Peyster Home May Close.—This institution, located at Verbank, near Poughkeepsie, which has been in existence for nearly a century, may be forced to close for want of funds unless money is forthcoming at once. There are about one hundred invalid children in the home at present.

Health Field Day at Rochester.—Rochester's health field day, participated in by the military companies, civic and athletic societies and the school children of the city, and generously supported by the public, was a great success and resulted in a fund of $5,000 for the benefit of the children's free dispensary.

Personal.—Dr. A. T. Bull, the oldest practitioner in Buffalo, hale and hearty until a few weeks ago, at 85 has been made an honorary member of the Erie County Medical Society and an honorary life member of the Buffalo Academy of Medicine. Two weeks ago, however, in attempting to board a street car he was thrown to the street and seriously injured. He is still in a critical condition and may not recover.

New York City

Coal Lands for Hospital.—By the will of Normal I. Rees St. Luke's Hospital will receive about 6,000 acres of coal and iron lands in Virginia and West Virginia.

Women Want Internships.—Dr. Maud Glasgow has initiated a movement to get women admitted as interns into the larger hospitals of New York. There are said to be only two smaller hospitals in Greater New York where women can be admitted as interns.

German Hospital Needs Money.—The addition to the German Hospital of Brooklyn which was so urgently needed has been begun without provision having been made to defray the entire cost, so the board of trustees has appealed to the general public for funds with which to carry on the work.

Another Move by Osteopaths.—The osteopaths are still struggling for recognition by the health board. A motion has just been argued before the Supreme Court of Brooklyn for an injunction to restrain the board of health from enforcing Section 163A of the Sanitary Code, which provides that no transit permit shall be granted for the burial of a person who has been treated by an osteopath until the body has beeen examined by a regular physician. Justice Putnam reserved his decision.

Milk Dealers Willing to Cooperate.—The board of health has placed its ban on all pasteurized milk in bulk as food for infants unless it is boiled and Dr. Lederle has suggested that dealers and dairymen cooperate with the department in producing milk of definite grades suitable for young children. Dealers have expressed their willingness to do what they can and are considering plans which they will submit to the board of health. Of the 1,600,000 quarts of milk received daily in this city only about 2 per cent. is certified or guaranteed. The aim of the department is to get a sufficiently good quality of milk for babies at a reasonable price, such as is sold in many European cities.

Harvey Lecture Program.—The Harvey Society elected the following officers for the year 1910-1911: President, Dr. Simon Flexner; vice-president, Dr. John Howland; treasurer, Dr. Edward K. Dunham; secretary, Dr. Haven Emerson; council, Drs. Graham Lusk, S. J. Meltzer and James Ewing. The following program for the next series of lectures has been arranged:

October 15.—Prof. Dr. H. Chiari of Strassburg, Germany, on "Die Bedeutung der pathologischen Autopsie und sonstiger pathologisch-anatomischen Untersuchungen."
November 12.—Prof. W. E. Castle of Harvard University, on "Unit Characters in Heredity."
December 10.—Prof. Harvey Cushing of Johns Hopkins University, on "Certain Clinical Aspects of Dyspituitarism."
January 14.—Prof. Arthur R. Cushny of the University of London.
February 4.—Dr. Thomas B. Osborne of the Connecticut Agricultural Experiment Station, New Haven, on "The Chemistry of the Proteins."
February 25.—Prof. Jacques Loeb of the Rockefeller Institute for Medical Research.
March 18.—Prof. H. Gideon Wells of the University of Chicago.

These lectures are open to the public and are given on Saturday evenings at the New York Academy of Medicine.

NORTH CAROLINA

Free Dispensary.—A new free dispensary at Asheville was opened August 15, in charge of Drs. Frazer, Ringer and Herbert. The dispensary was founded by the Associated Charities.

Pure Water.—Sixty-three municipalities of this state have public water supplies which have collectively received during 1,486 examinations in the state laboratory of hygiene with the net result of finding only 5 per cent. of contaminated water. Practically all of those found deficient have, under direction of the State Board of Health, corrected the defective water service.

State Health Secretary on Vaccination.—The annual report of the secretary of the State Board of Health in the June *Bulletin* of the board discusses the question of quarantine for smallpox. The secretary approves of the action of Minnesota and South Carolina in abolishing quarantine, and says that if it was generally known that there would be no quarantine nearly everybody would be vaccinated. He then says that the minority would consist of two classes of people:

> The first class are those whose sense of responsibility for community health is such that they are more influenced by the anticipated slight personal discomfort of a sore arm than they are influenced by considerations of the public weal. The second class are our esteemed friends who do not believe in the protective power of vaccination. To these science is dumb and experience is a liar. And yet to protect these two classes we quarantine. To protect them when they alone last year spread the disease all over our fair state, put the state to an expense of $40,000 to $50,000! Do these civic irresponsibles deserve an altogether unnecessary expenditure of $50,000 by those who have discharged their civic obligation in the matter of smallpox? My answer is: No.

Free Diphtheria Antitoxin.—For more than a year past the State Board of Health has provided diphtheria antitoxin at actual cost to all indigents who reside in counties applying for the same—the cost eventually being borne by the counties themselves; forty-nine counties and thirteen cities during the past year availed themselves of the privileges of the reduced

cost in diphtheria antitoxin. There is a move now on foot to secure such legislation from the coming legislature as shall enable the state to establish a plant for the production of its own antitoxin.

Judgment Against Physician.—In the Superior Court at Wilmington last week judgment was obtained against Dr. Lionel H. Love, formerly of that city, but for the three years past a resident of Monterey, Cal., in the sum of $5,000 for damages in an action brought by a former patient whose dislocated and fractured arm was treated by Dr. Love some ten years ago. Dr. Love admitted the arm was out of joint but insisted the plaintiff would not consent to an anesthetic, without which, owing to local conditions at the time, it was impossible to make a correct diagnosis. Appeal was taken to the Supreme Court.

Personal.—Dr. Robert L. Gibbon, Charlotte, is convalescing from a severe attack of typhoid fever.——Dr. O. L. Holler, Taylorville, while driving to a patient during a severe storm August 1, was struck by a falling tree, sustaining a fracture of the skull. Unconsciousness supervened immediately, trephining was done by Dr. H. F. Long of Statesville, and later Dr. Holler regained consciousness with a fair prospect of recovery.——Dr. J. S. Lafferty, Charlotte, is doing post-graduate work in Berlin.——Dr. J. Herbert Mease of Canton has been nominated by the democrats for representative in the state legislature for the ensuing term of two years.

Hospital Investigation.—The State Board of Internal Improvements spent several days in session at Greensboro last week hearing evidence relating to the charges preferred against Dr. J. R. Brooks, superintendent of the State Sanatorium for Tuberculosis at Montrose, and the trustees of the institution, by Dr. John Roy Williams of Greensboro. The trustees include three well known physicians besides six other prominent citizens. The State Sanatorium was opened early in 1908 when the accommodations were probably insufficient and the exhaustion of the legislative appropriation prevented the completing of the full equipment of the sanatorium. The findings were wholly at variance with the charges made, and the trustees and Dr. Brooks were vindicated fully in the report to the governor.

Examination of Troops for Hookworm.—Dr. John T. Ferrall, working under the joint auspices of the State Board of Health and the Rockefeller Commission as special assistant, has just completed the examination of the members of the state guard at the annual encampment. As a result it appears that the Second Guard Regiment (from eastern or coastal Carolina), showed 57 per cent. of infection, and the First Regiment (from the western or mountain section), 37 per cent. The examination of the Third Regiment (central Carolina), was not so complete as were those of the other two regiments, but apparently it showed about 40 per cent. of its men infected with hookworm. Much interest is being manifested by physicians of the state in diagnosing the disease, a report from the state laboratory of hygiene at Raleigh showing an average of twenty-five specimens of feces arriving daily for microscopic study and report.

PENNSYLVANIA

Personal.—Dr. B. H. Detwiler of Williamsport, is seriously ill with paralysis. His whole right side is affected.

Infantile Paralysis.—Two deaths from and three new cases of infantile paralysis were reported to the health authorities at South Bethlehem, August 8.

State Sanatorium Bids.—Bids for the construction of the buildings of the State Tuberculosis Sanatorium to be erected at Cresson show that the work will cost about $250,000.

Typhoid at Wilkes-Barre.—On August 8 seven new cases of typhoid fever were reported in Wilkes-Barre, making a total of 50. The state health authorities have been asked to make a thorough investigation.

Rittersville Investigation.—The report of Mr. Lindley Johnson, the consulting architect retained last May by the State Board of Public Grounds and Buildings to investigate the work of the State Homeopathic Hospital for the Insane at Rittersville, was made public by Governor Stuart on August 12. The work was begun nine years ago and not one of the buildings has been completed. Appropriations by various legislatures for this work total $1,703,750, and contracts already let for the work amount to $1,482,445.83. To complete the buildings will require $349,000. The balance in the state treasury is $272,781.40, so that an additional appropriation of $76,219.60 will be required to finish the work, according to Mr. Johnson's ideas. He says that the work is well executed and that the hospital can be put in condition to receive some patients within four months, though at least a year will be required before the institution can be completed. He also reports that many of the buildings have suffered from exposure to the weather in an incompleted state. Many walls have been disfigured and much plastering ruined, but the buildings have not been structurally weakened.

Philadelphia

Personal.—Dr. Louis J. Burns sailed for Europe August 11 and Dr. George E. de Schweinitz August 13.——Dr. Edward P. Davis sailed August 10 to attend the International Gynecologic Congress in St. Petersburg, to which he is a delegate from the American Gynecological Society and the Jefferson Medical College.

Unlicensed Druggists Arraigned.—In the crusade against unlicensed drug-stores and the compounding of prescriptions by "quack" pharmacists, the State Pharmaceutical Board had four druggists of "Little Italy" arraigned before Magistrate Beaton August 12. In each case the druggists who violated the law were held under $600 bail for court.

Typhoid Increase Due to Carelessness.—Investigation of typhoid fever cases reported in the two weeks ending August 13, showed that 72 per cent. were men between ages of 17 and 32, and 28 per cent. were women. Chief Vogelson of the Bureau of Health said that the history of many of the cases showed that young men on boating trips had drunk raw river water.

Hospital for Midvale Steel Works.—Plans have been prepared for a two-story fire-proof hospital building, 54 by 80 feet, containing emergency wards, dispensary and quarters for a doctor. At present, a physician makes daily visits to the Midvale Steel Works, but because of frequent accidents in the shops, it has been found necessary to have a doctor in constant attendance.

Maker of Soothing Syrup Arrested.—Following the resolutions made by the Retail Druggists' Association to stamp out the indiscriminate sale of doped soothing syrups, a warrant was sworn out before Magistrate Beaton, by Dr. Christopher Koch, vice-president of the State Pharmaceutical Board, for the arrest of Mrs. M. M. Harvey, manufacturer of "Mother's Comfort," a medicine which has been found to contain one-third of a grain of morphin to the ounce.

Free Dental Treatment.—A dental clinic is to be established in the city hall, under the direction of the Department of Health and Charities. An appropriation of $3,000 for this purpose was made by councils several months ago. The committee to have charge of the dental dispensary is composed of P. B. McCullough, chairman, and Drs. W. A. Jacquette, Edward C. Kirk, J. J. Burke and Charles B. Schupack. One hundred dentists have volunteered their services, and rooms will be fitted up with all the modern appliances. It has been estimated that 80 per cent. of the public and parochial school children are in need of dental treatment.

War Against Doped Soft Drinks.—Up to August 13, 60 warrants had been sworn out by Special Agent H. P. Cassidy, of the State Dairy and Food Department, for the arrest of bottlers, who are charged with putting harmful substances into bottled soft drinks. Fourteen were ordered to appear for a hearing before Magistrate Beaton August 16. Some have already been convicted of adulterating their products and have paid heavy fines. Samples were taken of the cheap varieties of soda by Agent Cassidy and were analyzed by Prof. Charles H. Lawall, chemist for the State Dairy and Food Department, and were found to contain saccharin and soap bark. Children are the principal purchasers of the cheap drinks and it is thought that much of the illness among children in the tenement district is due to this fact.

Space on Recreation Piers to be Increased.—As a result of an inspection tour made on August 9 by Dr. Neff, Chief Eisenbower, of the Bureau of City Property, and Select Councilman Ryan, the space on the Chestnut and Race Street piers will be greatly increased. The report of the work on the Chestnut Street pier is as follows: Daily attendance, sick infants, 20; well infants, 24; older children, 36. Total attendance of children, 80. The attendance at the Race Street pier was equally good. Large quantities of medicines and modified milk have been distributed since the centers were opened ten days ago. Figures relative to the work being done in connection with the campaign for the reduction of

infant mortality, show that during the week ending August 13, 19 nurses were engaged. They made a total of 1,374 visits and assisted in the care of 224 infants.

SOUTH CAROLINA

Personal.—Dr. Charles Speissegger, Jr., Charlestown, has received his commision as army surgeon with the rank of first lieutenant.

Pasteur Institute.—The board of health of Charlestown has opened a Pasteur institute for the treatment of rabies. It will be in charge of Drs. John M. Green and George M. Mood.

New City Hospital.—A charter has been secured and building will be begun immediately on a new city hospital at Gaffney. The capital stock is $10,000. Dr. R. T. Ferguson is secretary-treasurer of the organization.

Medical Society Meetings.—At a meeting of the Palmetto Medical Association, composed of colored physicians of the state, the following officers were elected: President, Dr. H. C. Hardy, Spartanburg; vice-president, Dr. L. S. Edwards; secretary, Dr. Issac N. Macon, Rock Hill, and treasurer, Dr. J. S. Allen, Chester.——Lancaster County Medical Association was organized at Lancaster recently and the following officers elected: President, Dr. Thomas J. Strait, and Dr. William F. Laney, secretary, both of Lancaster.

VERMONT

Personal.—Dr. Richard G. Eaton, Wakefield, Mass., has been appointed by the trustees of the Brattleboro Retreat second assistant physician, to succeed Dr. Park R. Hoyt, recently resigned.

Health Officers Meet.—The twelfth annual school of instruction for health officers was in session at Montpelier for four days, beginning August 1. Dr. George M. Kober, Georgetown University, Washington, D. C.; Dr. Henry A. Wood, Waltham, Mass., and Dr. Livingston Ferrand, New York, secretary of the National Association for the Study and Prevention of Tuberculosis, were the guests of the meeting. State's Attorney H. B. Shaw, Burlington, read a paper on "Legal Points in Health Work" and then answered legal questions raised by the health officers. He gives it as his opinion that the state board of health has no power to give to the health officer of a city or town the right to act in an adjoining town or city where a health officer has been appointed. He also ruled that complaints of nuisances must be made to the local health officer and not to one in an adjoining town or city. The proposition for a national department of health was endorsed.

VIRGINIA

Hookworm Examinations.—Dr. Roscoe C. Carnel, representative of the Virginia Board of Health, has been spending some time in Suffolk, cooperating with the physicians in that place in the study of hookworm cases.

School Inspection and Sanitation.—Medical inspection of the school children of the Norfolk public schools will be inaugurated for the coming term. The common drinking cup has been abolished and sanitary drinking fountains will be installed in all the schools.

New College Board.—In the reorganization of the University College of Medicine, Richmond, all the medical representatives of the board of trustees resigned and the new board is made up of laymen, except Dr. John W. Dunn, secretary. Dr. Stuart McGuire was elected president of the faculty.

Society Organized.—More than fifty physicians, representing the counties of Warren, Frederick, Clarke, Rockingham and Shenandoah, met at the Memorial Hospital in Winchester, August 10, and organized the Shenandoah Valley Medical Society. Dr. Durus D. Carter, Woodstock, was elected president and Dr. Cox, Winchester, secretary-treasurer. The organization will meet quarterly. Dr. Stuart McGuire, Richmond, was chosen councilor in the State Medical Society.

Work Against Tuberculosis.—The tuberculosis hospital at Petersburg, the first to be established in the state, is to enlarge and extend the sphere of its usefulness. The Hill Crest Settlement has purchased the farm on the southern border of the city, containing twenty acres and a dwelling house of ten rooms. The capacity of the institution will be enlarged.——Realizing the necessity of work among negroes in order to make effective the fight against tuberculosis, it has been determined to organize leagues among teachers and students in the colored schools in the state. This work will be done under the direction of the State Antituberculosis Association, which recently held a meeting in the office of the state health department, Richmond. Dr. Charles P. Wertenbaker, United States Public Health and Marine-Hospital Service, was detailed by the surgeon-general to attend this meeting. Dr. William F. Drewry, Petersburg, was elected chairman of the committeee. The colored people of the state are awakening to the necessity of combating the disease and are taking interest in the work of the colored antituberculosis league of Virginia. The first meeting of the league was held at Hampton, August 11, and a campaign along lines suggested by the state health department will be carried on among colored people in every part of the state.——The seaside camp at Cape Henry, under the direction of the Norfolk Antituberculosis League, which takes care of children whose parents have died from tuberculosis, reports a very successful season. The camp opened June 12 and will remain open until September 1.——The new tuberculosis camp on the city farm, Richmond, is completed and was opened August 15. There will be no resident physician, but Dr. Giles B. Cook will act as medical examiner.

GENERAL NEWS

Fighting Tuberculosis in the Philippines.—Hon. Jacob M. Dickinson, secretary of war, who has been visiting the Philippine Islands, assisted at Manila in the organization of a national society to fight tuberculosis. The disease has been making great inroads among the Filipinos.

International Red Cross Conference.—The ninth international conference of the Red Cross will be held in Washington, D. C., in May, 1912. Red Cross endowment fund committees of prominent men have recently been appointed in Chicago, St. Louis, Cincinnati and Washington by President Taft, and effort will be made to raise a fund of $2,000,000 for the American Red Cross.

International Epilepsy Congress.—An international association for a systematic study of epilepsy and care and treatment of epileptics was organized at Budapest last year, and the first general meeting is to be held at Berlin Oct. 4 to 7, 1910. Prof. A. Tamburini of Rome and Prof. J. Donath of Budapest are, respectively, the president and the secretary of the association. Professor Veith will discuss the criminality of epileptics and a number of statistical works will be presented. The transactions will appear in the journal *Epilepsia*.

Health and Mortality in the Canal Zone.—The report of the Department of Sanitation of the Canal Zone for the month of May compares the mortality among the employees for the past four years. It shows that the number of deaths among the 39,000 employees in 1907 was 98, while among the 52,800 employees in 1910 it was only 34. The death rate per thousand during May among the white employees during American control was, 1907, 18.34; 1908, 14.59; 1909, 14.11; 1910, 6.98, and among the black employees during the same month, 1907, 34.48; 1908, 8.72; 1909, 7.87; 1910, 6.98. The average number of employees constantly sick per 1,000 in hospitals, sick camps and quarters, is, white, 46.48; colored, 15.80.

Mississippi Valley Meeting.—The annual meeting of the Mississippi Valley Medical Association will be held this year at Detriot, September 13, 14 and 15. The headquarters will be at the Hotel Pontchartrain. Dr. Frank P. Norbury, Hospital, Ill., is president; Dr. Henry Enos Tuley, Louisville, Ky., secretary, and Dr. Henry O. Walker, Detroit, chairman of the entertainment committee. A preliminary program has been issued, which may be obtained from the secretary on request.

Cholera May Prevent Medical Meeting.—The meeting of the International Gynecologic Congress, which was to be held in St. Petersburg in September, may not convene in that city on account of the epidemic of cholera prevailing there. Dr. Charles A. L. Reed, Cincinnati, president of the American committee and government delegate to the meeting, has cabled the Russian committee that if the meeting cannot be held there the American profession will welcome the organization to this country. The meeting of 1908, which was to be held in St. Petersburg, was deferred for the same reason.

Tuberculosis in Prisons.—Through the investigation of the National Association for the Study and Prevention of Tuberculosis, as set forth in a bulletin recently issued, there are 12,000 tuberculous prisoners in state, federal and local prisons and jails in the United States, or an average of 15 per cent. of the prison population. Only twenty-one prisons in fifteen states and territories have provided special places for the treatment of tuberculous prisoners. These institutions can accommodate only 800 patients. In three-fourths of the

larger prisons and jails no provision is made for isolating these patients. New York and Massachusetts are the only states where any systematic attempt has been made to transfer tuberculous prisoners to one central station. Tuberculosis is also exceedingly prevalent in the prisons of the Philippine Islands, and the largest tuberculosis hospital is in Manila where accommodation for 200 tuberculous prisoners is provided. The Clinton Prison Hospital in New York provides for 150. The 100,000 prisoners annually discharged from jails and prisoners, 15 per cent. of whom are tuberculous, present a serious problem in the distribution of tuberculosis.

FOREIGN

New Large Public Hospital at St. Petersburg.—The cornerstone of the Peter the Great Hospital was laid at St. Petersburg last month. It is to be the largest hospital in Russia, with thirty-seven separate buildings, and is expected to cost over $10,000,000.

Personal.—The Astley Cooper prize has been awarded by the Guy's Hospital School to Professor E. Starling, F.R.S.——At the meeting of the Berlin Academy of Sciences on June 30, commemorative addresses were made on Frederich Kohlrauch, by Professor Rubens; on Hans Landolt, by Professor van't Hoff, and on Robert Koch, by Professor Rubner.

Russian Cholera Epidemic.—The cholera in Russia continues to spread, particularly in St. Petersburg and in the southern mining districts, and is approaching the proportions of the epidemic of 1908. Figures of the central sanitary bureau show that in the week ending July 30 there were 15,244 cases of cholera and 6,944 deaths. The government has decided to send to the mining regions a special commission to study the situation, empowered to organize sanitary preventive work. Industrial conditions are seriously handicapped in the afflicted regions.

Deaths in the Profession Abroad.—Besides those mentioned elsewhere the profession has lost the following eminent medical men: Larra y Cerezo, M.D., of Madrid, a high military medical officer and president of the Medical Press Association of Spain.——J. Grünfeld, M.D., of Vienna, prominent in syphilology and a pioneer in the field of endoscopy. He was 70 years old.——H. Berestnew, M.D., of Moscow, one of the leading bacteriologists of Russia.——George Herbert Rowe, M.R.C.S., Leeds, trustee and senior surgeon of the Leeds Dispensary, aged 53——Claude Muirhead, MD., F.R.C.P., consulting physician to the Royal Infirmary, died at Edinburgh June 22, aged 75.——Dr. G. B. Halford, late professor of physiology in the Melbourne University at Melbourne, Australia, aged 86.

MANILA LETTER

(From Our Regular Correspondent)

MANILA, June 21, 1910.

Medical Surveys of Native Towns

The medical survey party has returned from one of the northern provinces where it has been making investigations. It has been planned to send out at least one of these survey parties each year. They are arranged by the Bureau of Health, the Philippine Medical School and the Bureau of Science and are usually sent out during the vacation period of the medical school. Under a director the survey party goes to a typical native town of a district or province and with the aid of the presidency, the local head of the government, establishes a dispensary and makes a medical investigation of the town. The object is to inquire into the sanitary conditions of the inhabitants, the water supply and sewage disposal, to determine what contagious diseases, if any, are present and to what extent, to find what diseases are most prevalent—special attention being given to smallpox, plague, cholera, typhoid and dysentery—and to look into the midwife practice and infant mortality. Some difficulty is often encountered in overcoming the natural reserve and suspicion of the inhabitants. On this account locating the various people who are sick and inquiring into their mode of living often becomes quite a problem. The inhabitants will not always come to the free dispensary of their own accord until they have looked the intruders over and satisfied themselves of their purpose. In addition many cases of serious illness are likely to go unnoticed even after the best of relations have been established between the doctors and the natives. To overcome these difficulties, a happy plan was put into practice last year. This consisted in the taking of a complete civil census of the town as the first part of the program. After the dispensary, laboratory and living quarters were established a house-to-house canvass was made. Thus the survey party soon became acquainted with the people and nearly all the cases of serious illness as well as insanitary homes, etc., were early located.

At Taytay last year a complete medical and geographic survey, as well as an anthropologic study of the people were made. The whole is published in a recent number of the *Philippine Journal of Science*. These surveys serve at least three purposes: They add to our knowledge of the variety, severity and extent of tropical diseases in the Orient and particularly in the Philippines. They materially aid the Bureau of Health in determining the sanitary condition of the average town of the various provinces of the Philippines, the geographic distribution of the rare diseases and of the more common epidemic diseases. The members of the parties become intimately acquainted with the Filipinos and are thus better able to carry into effect from time to time their program of sanitation; finally the Philippine Medical School is kept in close touch with the practical side of medical questions as they appear in the islands and it is enabled to vary the curriculum accordingly.

Polished Rice and Beriberi

In the Philippines in all specifications for commissary stores where rice is required for either the Army or Navy unpolished rice is specified. Polished rice is no longer used as a diet in either the Army, the Navy or in the public institutions of the islands. The supposed relation of polished rice, as a diet, to the development of beriberi is the direct cause of this ban. In so far as statistics are available and reliable, it would seem that since the introduction of improved rice-milling machinery into the Philippines the amount of beriberi among the natives has increased. Of course due allowance must be made in these considerations for a great number of cases reported as beriberi which are, to say the least, of a doubtful diagnosis. Since beriberi has been so much in the limelight of recent years in the Orient, it would hardly be an exaggeration to say that there has been a tendency to include various nervous disturbances under the heading of beriberi which in reality should have been classed as something else. In spite of this, a number of competent medical men both in the Philippines and in other parts of the Orient have observed an increase in the number of cases of this disease since polished rice has supplanted the hand-milled rice as the staple article of diet. In many sections the natives have early shown a preference for polished rice. It is rather noteworthy also that beriberi is decidedly more frequent among that class of natives whose staple and principal article of food is polished rice, and that in those remote regions where the Filipino still uses the unpolished rice, although rice is the principal article of diet, beriberi is relatively rare. These observations go hand in hand with the observations of Dr. de Haan that, in Netherlands India, it has been found beriberi could be kept very much in abeyance by adding to the white rice diet a form of green pea which is called "*katchung idj-ju*" and is said to be rich in phosphorus, as well as with the results of the experiments of Dr. Frazier and Dr. Stanton at the laboratory for medical research at Kuala Lumpur, Federated Malay States, who find "that fowls fed on highly polished rice suffer, within from 4 to 6 weeks, from a condition of inflammation of the nerves which closely resembles and may be identical with the condition of the nerves found in beriberi in human beings." All these things taken together suggest some indication of the etiology of the disease. It seems evident that beriberi is primarily a disease of nutrition and metabolism, and in local medical circles by many it is considered doubtful that beriberi is caused by an organism. Perhaps the most widely accepted view is that advocated by Dr. Frazier who points out that in a steady diet of polished rice, as is often the case here in the Orient, the individual fails to obtain sufficient nourishment for the peripheral nerves. He showed that the unpolished rice grain contains beneath the skin or pericarp a layer of cells rich in fat and phosphorus and that the central portion of the rice grain consists entirely of pure starch. In polished rice the outer fat-containing layer has been polished away. Rice prepared in the ordinary native fashion by hand milling contains a large amount of these oil-bearing layers. It is, moreover, the experience of the Bureau of Health of the Philippine Islands that a little meat or even the rice polishings mixed with a diet of white rice will lead to an improvement of beriberi patients in the early stage.

Peculiar Case of Helminthiasis

Last year a young woman very much emaciated generally but with a large protruding abdomen very much like the pot-bellied appearance of the native Filipino pig, came to the Philippine Medical School for treatment. For a long time she had been looked on with suspicion by the inhabitants of the town; it was considered that some curse was cast upon her by the Great Evil Spirit or some of the other numerous evil spirits. Consequently, she came very much into disrepute. According to one view it was thought that she had been loose in her morals and that for punishment she could not give birth to the child but must carry it indefinitely or until the spirits were appeased. After treatment by the American physicians she was delivered of 11 pounds of worms, regained her virtue and soon became a well woman.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, Aug. 6, 1910.

Infant and Child Mortality

The local government board has issued a report prepared by its chief health officer, Dr. Newsholme, on infant and child mortality in England and Wales. This is the first systematic attempt to investigate the localization and extent and incidentally the causes and effects of a condition regarded as a blot on our civilization. In the last four years there has been a wide-spread awakening to the national importance of child mortality and a largely successful endeavor to diminish it. The object of the present report is threefold: to determine whether the reduction of infantile mortality implies any untoward influence on the health of the survivors to later years; to indicate the communities which are characterized by a continuing high rate of infant mortality, and to assess the different factors by which such mortality is brought about. An extraordinary difference is found in the infantile death-rates in different parts of the country, the mortality per 1,000 births in the first year of life varying from under 90 to over 150. In the first five years of life the mortality is also unequally distributed, being twice as high in some counties as others. Excessive infant mortality implies excessive mortality in later life. Counties having excessive infant death-rates have also excessive death-rates throughout the first twenty years of life, and counties having low infant death-rates have low total death-rates in this period. In the recent decline of infant mortality a higher standard of education, especially in its moral aspects, is considered an important factor. In 1906 and in 1908 national conferences on infant mortality were held and had a great educational influence. The Notification of Births Act of 1907 crystallized public opinion on the subject. Voluntary health associations as well as public health officials then concentrated on the problem of infant mortality and aided in the development of the "sanitary conscience." The main cause of excessive infant mortality is neglect of sanitation. For this the local health authorities are often responsible. So long as they permit excreta to be kept near houses in towns and allow streets to be unpaved domestic sanitation has not a fair chance. In many manufacturing districts, such as Durham, in which the death-rate of children is excessive, the laboring population is compelled, by the inaction of the local authorities, to live on a soil and in an atmosphere laden with filth, which contaminates food, clothing and person. Reports of this condition are constantly made by inspectors of the local government board, but they have no effect on the local authorities. Usually the health officer is a busy local physician who receives a small salary, which these authorities regard as a sop to keep him quiet, or he is unwilling to offend his patients by calling attention to their misdoings. In towns where the health officer devotes his whole time to the work he is more independent.

The British Pharmaceutical Conference

The forty-seventh annual meeting of the British Pharmaceutical Conference was opened at Cambridge on July 26. A large number of delegates attended from all parts of the United Kingdom. The presidential address was delivered by Mr. Francis Ransom, who emphasized the great need for pharmaceutic research and pointed out that the universities of this country are now offering increased facilities for the study of certain branches of science intimately connected with pharmacy. Looking over the vast amount of work done during the last 50 years by pharmacologists on the one hand and by chemists on the other, the question arose as to whether they might not have achieved more valuable results if there had been a definite system of organization to bring together the two classes of investigators. He suggested that a joint committee should be appointed to consist of representatives of the British Pharmaceutical Conference and of the British Medical Association with a view to organizing medical research between physicians and pharmacists. This committee would be able to establish the value or worthlessness of any remedy. An investigation could be undertaken by the pharmacologists to determine its remedial value, by the physiologist to determine its action, by the chemist to ascertain its composition and by the pharmacist to determine a suitable preparation. Mr. Ransom also referred to the necessity for studying the cultivation of medicinal plants with the object of ascertaining under what condition the best results could be obtained. At present there was much diversity of opinion as to the cause of temporary variation in the quality of certain drugs, and this afforded scope for botanic investigation. Thus there was a remarkable divergence in the percentage of active principle in jalap of commerce; a similar divergence had been noted in belladonna root, some plants yielding thrice as much alkaloid as others. Again, it was generally thought that the value of many medicinal preparations was not entirely dependent on the alkaloids which they contained, but also on other constituents. This question opened up a wide field for research.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, Aug. 5, 1910.

The Third International Congress of Educational Hygiene

The formal opening session of the third Congrès international d'hygiène scolaire was held on August 2 at the Sorbonne, under the honorary presidency of Professor Landouzy, dean of the Paris college of medicine. The congress was attended by 1,600 persons, most of whom were from the northern countries, especially Sweden, Norway, Denmark and England. The vacation season was both favorable and unfavorable. It brought to Paris a great number of foreign members, but many French members were kept away by attendance at other scientific meetings, as I mentioned in a previous letter (THE JOURNAL, July 23, 1910, p. 325). In his opening address, Dr. Landouzy took for his subject the rôle of the physician in educational hygiene. He showed how much this rôle has been enlarged since to-day on the school physician rest many duties, such as the sanitary supervision of the school, the prophylaxis of contagious diseases, the keeping of the sanitary records of the school building and of the individual pupils; the instruction of the teachers in hygiene, and the consideration of the programs, methods and the hours suitable for the various ages, the two sexes and for the various subjects of instruction. The great philosopher Descartes wrote almost prophetically in the seventeenth century: "Principally also, for the preservation of health, which is doubtless the first good thing, and the foundation of all other good things of this life, if it is possible to find anything which will make man wiser or more skilful than he has been hitherto, I believe that we must seek it in medicine."

The congress is divided into eleven sections, some of which are presided over by physicians and some by educators. The first section, that on school buildings and furniture, is presided over by Dr. J. A. Courmont, professor of hygiene in the Lyons college of medicine; the third, that on medical inspection of schools, by Dr. Le Gendre, physician of the hospitals of Paris; the fifth, that on the prophylaxis of contagious diseases, by Dr. Hutinel, clinical professor of children's diseases in the Paris college of medicine; the eighth section, that on the instruction of teachers in hygiene, by Dr. Pinard, professor in the Paris college of medicine; the eleventh section, that on the hygiene of the sight, the hearing, the mouth and the teeth, by Dr. Truc, professor of clinical ophthalmology at the Montpellier college of medicine. The other sections are concerned with the physical education, hygiene outside of schools (fresh-air schools, vacation colonies), hygiene among the teaching force, programs and methods of instruction in their relation to educational hygiene, special schools for abnormal children, etc.

Besides the work in sections, the congress has already held several general sessions. One of these sessions was devoted to the question of the standardization of the methods of the physical examination of pupils, on which a report was made by Dr. Méry, *agrégé* professor at the Paris college of medicine, and Dr. Dufetel, medical inspector of schools of the city of Paris, who recommend that the weight, the height

and the circumference of the thorax of pupils be measured in a uniform way, so that the results obtained by various observers may be compared to advantage. The general session devoted to the delicate question of the sexual education of children brought together a large attendance. Dr. Doléris, member of the Académie de médecine of Paris, in his paper especially emphasizes the necessity of organizing in the normal schools, special courses, taught by physicians, for the purpose of enabling teachers to give sexual instruction to their pupils.

The congress passed a resolution in favor of the adoption of the vertical handwriting and of the erection of bath-rooms and shower baths in primary schools. It also advocated dental inspection by specialists, each school semester, the offices of inspecting dentist and practicing dentist being distinct, and the family being allowed entire liberty in the choice of the practicing dentist. The congress also voted the adoption of the conclusions of the report of Dr. Cazalet, president of the Union des Sociétés de gymnastique de France, in regard to the necessity of rendering physical education compulsory in all educational establishments.

Personal

Dr. A. Gilbert, professor of therapeutics at the Paris college of medicine, has been recently appointed professor of clinical medicine to replace Dr. Dieulafoy. The council of the college unanimously proposed for the chair of therapeutics, thus made vacant, Dr. Marfan, *agrégé* and physician of the Paris hospitals. The new professor is known especially for his work on pediatrics. He has published a treatise on breast-feeding and artificial feeding, which has had great success.

At the Bordeaux college of medicine, Dr. Lagrange, *agrégé*, has been chosen professor of clinical ophthalmology in place of Dr. Badal. At the same college, Dr. Auché has been chosen professor of hygiene, replacing Dr. Layet. At the college of Nancy, Dr. Hoche, *agrégé*, has been chosen professor of pathologic anatomy.

Measures Adopted Against Cholera

The *Journal Officiel* has just published a decree, stating the sanitary measures to be taken for preventing the importation of cholera into France. Every person coming from a cholera-infected region who presents suspicious symptoms on arriving at the French frontier will be detained at the frontier station by a special commissioner and isolated. The following articles are prohibited from entering France by the land frontier: soiled clothing and bedding, rags (except baled rags, transported in bulk) and fruit and vegetables growing under the soil or on the surface of the soil. Every person giving lodging to a traveler who comes directly from infected regions, or has left such regions within less than eight days, is bound to report the fact to the mayor of the commune, or in Paris, to the prefect of police, within twenty-four hours. Every case suspected of being cholera must be immediately reported to the mayor's office, by the physician, the head of the family, the persons in charge of the patient or by those with whom he is lodging. Infractions of this decree are punishable by imprisonment of from fifteen days to three months, and by a fine of not more than $100 (500 francs).

Yellow Fever

An English packet, the *Augustine*, bound from New York to Liverpool, was to have put in at Cherbourg, but several cases of yellow fever having broken out on board, the packet was obliged to put in at Havre, in order to be quarantined and put in sanitary condition.

Rioting by Pharmacists' Assistants

As I mentioned in one of my previous letters, the association of pharmacists' assistants obtained from the pharmacists, after long negotiations, the closing of the drug-stores at 9 o'clock, in all of the arrondissements of Paris, beginning August 1. But out of 1,500 of the drug-stores in Paris, four or five situated in the center, the special feature of whose business was to keep open all night, refused assent to this agreement and continued open as in the past. To compel them to close, the clerks in the association decided to employ the methods of violence which were used by the employees of shops for novelties and the grocers' clerks. About three hundred collected before the drug-stores in question and created a disturbance. The threatened pharmacists have no intention of yielding while the drug clerks have declared their intention of renewing the agitation each night. The police is going to take measures to protect the pharmacists.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, July 27, 1910.

Personal

July 16 the senior of German pediatricians, and indeed of pediatricians in general, Prof. E. Henoch, celebrated his ninetieth birthday. He has lived in Dresden since leaving the Berlin faculty and enjoys comparatively great physical and mental vigor. At his jubilee congratulations were sent to him from all sides, including those of the imperial couple, who regard themselves as indebted to him for the care of their children.

The University of Edinburgh has awarded Professor Bier the Cameron prize, which was offered by the university for that benefactor of mankind who should have made an especially important step in the progress of medicine during the last five years.

Professor Feer of Heidelberg has recived a call to Zürich as pediatrician.——The search for a successor of Professor Bumm, who, as is well known, has received the chair of Professor Olshausen, is now happily finished. In order to avoid further declinations a gynecologist was chosen who it could be assumed would surely accept, namely, Professor Franz of Kiel. Professor Franz is a former assistant of Bumm, aged 36; he has accomplished little of importance and is scarcely known in the wider German medical circles, to say nothing of foreign countries. The same procedure has been followed here as in the case of the successor of von Leyden, when Professor His was selected because it was thought that no better investigator could be got. In this way, at any rate, the fame of the Berlin medical faculty is diminishing, since it has lost Virchow, Helmholtz, Dubois Reymond and Koch. ——Professor Olshausen has been given a title of nobility on his departure from the faculty. Medical titles of nobility with us will soon be as common as blackberries.

Insurance Against Mental Disease

The attempt to transfer the burdens of the individual by means of insurance to the shoulders of the many has been extended by a German psychiatrist (Medical Councillor Fischer) to the provision for the care of the insane. The idea of insuring against insanity may seem strange at first sight; but insanity is not so rare and when it occurs it affects the life of the family quite as much as any other misfortune against which insurance is commonly secured. Fischer recommends insurance in connection with an institution for annuity and life insurance. In Nuremberg there has been for twenty-five years a society that makes a business of such insurance.

Admission to the Berlin Faculty

This question, which I have previously treated, has reached a new stage. The minister of education has informed the faculty that he contemplates repealing the secret ballot in the voting on the admission of new privat-docents. This method was introduced by the faculty in 1904 because its members believed that in this way their mutual independence would be better preserved, especially when the election of an assistant of an influential professor was under consideration. The faculty will undoubtedly agree with the view of the minister, inasmuch as this plan has had in fact no influence on the great excess of privat-docents admitted. As to the proposal to elect privat-docents for a short period, the minister has not yet expressed an opinion, but his decision may be unfavorable. For the removal of the nuisance complained of there remains as the surest method simply the principle to impose the strictest scientific requirements for admission. Evidence in favor of this is afforded by the fact that in the last semester not a single privat-docent has been admitted to the medical faculty.

Campaign Against Alcoholic Intemperance Among Children

To avoid the dangers that the use of alcohol entails on children the German Association Against the Misuse of Alcoholic Beverages prepared a warning circular which is to be distributed to parents under the direction of the Prussian department of education on occasion of public vaccination, medical inspection of schools, etc. The teachers are to speak of the circulars while teaching and place them in the school books, and they are also distributed by the midwives to lying-in women and by the officials at the announcements of births and weddings, and by factory managers, paymasters, ministers, etc. Altogether in this way 2,000,000 copies of this circular were distributed in 1909.

Marriages

HARRY D. CARTMELL, M.D., to Miss Oradelle DeMoulin, both of Greenville, Ill., August 11.

C. HUGH MCKENNA, M.D., to Miss Evelina Marguerite Beauvais, both of Chicago, August 10.

HERBERT SEYMOUR GAY, M.D., to Miss Marjorie Florence Dearborne, both of Boston, August 3.

WARREN D. MILLER, M.D., Weaver, W. Va., to Miss Louise Davis Lawrence, at Baltimore, August 6.

THOMAS ROY CAMPBELL, M.D., Arthur, N. D., to Miss Margaret Adile Luse, of Iowa City, Iowa, August 11.

OSCAR R. MICKLETHWAIT, M.D., Portsmouth, Ohio, to Miss Laura Allen, of Jackson, Ohio, at St. Charles, Mo., recently.

Deaths

William Frederic Ridgway, M.D. Jefferson Medical College, Philadelphia, 1904; a member of the American Medical Association; pathologist to the Atlantic City, (N. J.) Hospital; died at that city, August 5, following an operation for appendicitis, aged 38. Resolutions were passed on his death by the Atlantic County Medical Society.

William Newlon Miller, M.D. Jefferson Medical College, Philadelphia, 1852; a member of the Medical Society of the State of Pennsylvania; a veteran of the Civil War; said to have been the oldest practicing physician in Allegheny County; died at his home in Pittsburg, August 3, from pneumonia, aged 83.

James Lot Bullock, M.D. Meharry Medical College, Nashville, Tenn., 1895; a member of the National Medical Association; secretary of the North Carolina State Medical, Dental and Pharmaceutical Association for several years; died at his home in Greensboro, February 14, from tuberculosis, aged 39.

Silas Smith Cartwright, M.D. College of Physicians and Surgeons, New York City, 1853; a veteran of the Civil War; a member of the legislature from Delaware County in 1884 and 1885; postmaster of Roxbury, N. Y.; died at his home in that place, July 31, from heart disease, aged 76.

Abraham S. Raudenbush, M.D. Jefferson Medical College, Philadelphia, 1864; a member of the American Medical Association; one of the founders of the Reading (Pa.) Hospital and for some years a member of its staff; died suddenly at Pottstown, Pa., August 5, aged 69.

Edwin C. Buell, M.D. New York Homeopathic Medical College and Hospital, 1876; a member of the California State Board of Medical Examiners from 1901 until 1907; of Los Angeles; died in Genoa, Italy, while touring Europe, July 20, from appendicitis, aged 57.

James P. Moore, M.D. Medical College of the State of South Carolina, Charleston, 1852; a member of the American Medical Association; surgeon in the Confederate Army during the Civil War; died at Yazoo, Miss., August 5, from cholera morbus, aged 83.

George B. Jennings, M.D. Medical College of Virginia, Richmond, 1860; a member of the Medical Society of Virginia; for twelve years superintendent of schools of Green County, Virginia; died at his home in Ruckersville, August 2, from heart disease, aged 72.

Francois H. DeVaux, M.D. Hospice Bicetre, Paris, 1867; for a number of years United States army surgeon; at one time superintendent of the State Board of Health of North Dakota; died at his home in Chicago, August 7, from angina pectoris, aged 59.

Chesterfield W. Harper, M.D. George Washington University, Department of Medicine, 1860; contract surgeon for the United States army during the Civil War; was found dead in his room at Russellville, Ky., August 5, from heart disease, aged 74.

Theodore M. Togus, M.D. University of Vermont, College of Medicine, Burlington, 1886; a member of the New Hampshire Medical Society; a member of the board of health of Hookset, N. H.; died at that place, July 28, from heart disease, aged 57.

Joseph R. Ryan, M.D. University of Louisville (Ky.) Medical Department, 1865; surgeon in the Union army during the Civil War; of Des Moines, Iowa; died at the home of his daughter in Waterloo, Iowa, August 2, from cancer, aged 70.

John J. A. Burke, M.D. University of Buffalo (N. Y.) Medical Department, 1877; for nine years health officer of Rochester, N. Y.; died at Clifton Springs, N. Y., where he had gone for treatment, August 1, from paralysis, aged 60.

Frank Camm, M.D. University of Maryland, School of Medicine, 1885; a member of the Medical Society of Virginia; assistant surgeon at Camp Alger during the Spanish-American war; died at Lynchburg, August 5, aged 62.

Jesse S. Reagan, M.D. Rush Medical College, Chicago, 1854; a member of the Indiana State Medical Association; a practitioner of medicine in Indiana for fifty-seven years; died at his home in Lebanon, February 9, aged 81.

Levi Drakely Rood, M.D. University of Vermont, College of Medicine, Burlington, 1881; a member of the American Medical Association; died at his home in Des Moines, Iowa., August 8, from appendicitis, aged 49.

Charles Edwin Shumard, M.D. Cincinnati College of Medicine and Surgery, 1891; a member of the Cincinnati Academy of Medicine; died at his home in Venice, Ohio, August 2, from angina pectoris, aged 48.

Nathaniel Seward Parsons, M.D. University of Vermont, College of Medicine, 1874; a member of the Illinois State Medical Society; died at his home in Kewanee, Ill., August 8, from Bright's disease, aged 56.

James Henry, M.D. Bellevue Hospital Medical College, New York City, 1870; a veteran of the Civil War; formerly of LaHarpe, Ill.; died at his home in Galesburg, Ill., August 2, from paralysis, aged 69.

Nathaniel C. Wilson, M.D. University of Pennsylvania, Department of Medicine, 1853; a retired practitioner of Houston Heights, Texas; died at his home in that city, August 5, aged 93.

John Adam Krug, M.D. Medico-Chirurgical College of Philadelphia, 1889; a member of the Medical Society of the State of Pennsylvania; died at his home in Philadelphia, August 6, aged 54.

William Gilman Perry, M.D. College of Physicians and Surgeons, New York City, 1847; a trustee of the state hospital for many years; died at his home in Exeter, N. H., August 2, aged 87.

Myron E. Knapp, M.D. Chicago Homeopathic Medical College, 1882; of Detroit, Mich.; died at the home of his sister in Byron, Mich., July 29, from cerebral hemorrhage, aged 62.

Charles S. Parker, M.D. Castleton (Vt.) Medical College, 1847; a practitioner at Three Mile Bay, N. Y., for more than sixty years; died at his home in that place, July 28, aged 89.

Gustave Aftel, M.D. University of Warsaw, Russia, 1869; a member of the Ohio State Medical Association; died at his home in Toledo, August 5, from septic poisoning, aged 60.

John H. Whitehead, M.D. Homeopathic Hospital College, Cleveland, Ohio, 1874; a veteran of the Civil War; died at Bowling Green, Ohio, August 6, from diabetes, aged 69.

Solomon Secord, M.D. Medical Department of Victoria College, Toronto, Ont., 1856; a Confederate veteran; died suddenly at his home in Kincardine, Ont., April 24, aged 76.

Charles H. Moore, M.D. University of Pennsylvania, Department of Medicine, 1868; a veteran of the Civil War; died at his home in Wheeling, W. Va., July 28, aged 67.

Joseph H. Lukens, M.D. Eclectic Medical College of the City of New York, 1875; a retired practitioner of Seattle, Wash.; died at his home in that city, July 23, aged 67.

George William Harrison, M.D. Miami Medical College, Cincinnati, 1873; formerly of Newtonia, Mo.; died at Chester, Mo., August 2, from heart disease, aged 58.

Frederick Augustus Jewett, M.D. Harvard Medical School, Boston, 1852; a member of the Massachusetts Medical Society; died in Grafton, February 8, aged 85.

William Leslie Dewees, M.D. Medical College of Indiana, Indianapolis, 1883; died at Mooresville, Ind., August 5, from cerebral hemorrhage, aged 60.

Edwin Cowles, M.D. Hahnemann Medical College, Chicago, 1866; died at his home in El Dorado, Kan., July 28, from paralysis agitans, aged 80.

John Jackson Brower, M.D. Eclectic Medical Institute, Cincinnati, 1869; died at his home in Coshocton, Ohio, July 30, from paralysis, aged 71.

Lycurgus Coon, M.D. Physio-Medical Institute, Cincinnati, 1868; died at his home in Springfield, Mo., August 6, from tuberculosis, aged 72.

Pharmacology

[CONTRIBUTION FROM THE CHEMICAL LABORATORY OF THE AMERICAN MEDICAL ASSOCIATION]

AROMATIC DIGESTIVE TABLETS

W. A. Puckner and L. E. Warren

It has been amply demonstrated[1] that pepsin and pancreatin, when in solution, mutually destroy each other; if the solution be acid, the pepsin destroys the pancreatin; if alkaline, the pancreatin destroys the pepsin. By using the characteristic effect of pepsin on proteids in acid medium and that of pancreatin on proteids and starches in an alkaline solution it can readily be demonstrated that commercial liquid preparations labeled as containing both of these ferments actually contain only one ferment. They are misbranded.

Besides the liquid a goodly number of solid preparations, chiefly tablets, containing pepsin and pancreatin are offered to the profession. Among these are tablets consisting simply of pepsin and pancreatin. Since pepsin and pancreatin interact only when in solution, it is quite possible to prepare tablets which contain these ferments. The use of these tablets is unscientific, since one or the other of the ferments is destroyed when it comes in contact with the fluids of the digestive tract. In addition to simple tablets containing pepsin and pancreatin only there is at present a host of "digestive tablets" on the market. Among these are some which must be classed with the "digestive impossibilities" (Reports of the Council on Pharmacy and Chemistry, 1910, vol. 1, p. 41). The preparations referred to are tablets claimed to contain pepsin, pancreatin, diastase, hydrochloric acid and lactic acid. When it is considered that the United States Pharmacopeia defines hydrochloric acid as "a liquid composed of 31.9 per cent. by weight of absolute hydrochloric acid (HCl=36.16) and 68.1 per cent. of water," i. e., a solution of hydrogen chlorid, a gas, in water, it would at first appear that the incorporation of any appreciable quantity of hydrochloric acid in tablets would be impracticable. Hydrochloric acid, however, possesses to a limited extent the property of combining loosely with protein substances so that it becomes possible to bring about its combination with pepsin and similar substances to form compounds which are relatively stable at ordinary temperatures. Because of the volatility of the free acid and its limited combining power with protein substances (100 gm. boiled beef combined with 2 gm. absolute hydrochloric acid[2]), the quantity of acid in any tablet can never be large, much less than sufficient to be of any therapeutic value.

A number of firms offer "digestive tablets" for sale having formulas of which the following may be considered typical:

Sacch. Pepsin	4	grains
Pure Pancreatin	1	grain
Diastase	¼	grain
Aromatic Powder	¼	grain
Lactic Acid	⅛	grain
Hydrochloric acid	⅛	grain

Some manufacturers use United States Pharmacopeia pepsin in place of the saccharated article; others do not give the exact quantities of hydrochloric acid which their product is supposed to contain, but make use of the indefinite expression "q. s.;" still others state merely that hydrochloric acid is present, but make no claim whatever concerning the quantity.

From purely theoretical considerations it is possible that the tablets referred to might contain appreciable amounts of hydrochloric acid. Since the formulas for some of the tablets furnish no information concerning the content of hydrochloric acid, it seemed worth while to determine the quantity, if any, actually present in some of the tablets on the market. Accordingly a trade package of "digestive aromatic tablets," as put up under the label of each of six American manufacturers, was purchased and submitted to examination in the Association laboratory.

Qualitative tests made on specimens from each brand of tablets demonstrated the absence of uncombined hydrochloric acid in each. Further tests[3] showed that hydrochloric acid in protein combination was present essentially in the amounts claimed in three of the specimens. In two of the others hydrochloric acid was entirely absent; in the remaining one only the merest traces of hydrochloric acid could be found.

H. K. MULFORD COMPANY

"DIGESTIVE AROMATIC"

"Pepsin, Sacch.	4	grains
"Pancreatin	1/2	grain
"Diastase	1/16	grain
"Acid Lactic	1/8	grain
"Acid Hydrochloric	1/8	grain
"Aromatic Powder	1/4	grain

Dose: 1 or 2 tablets.

In the above formula each tablet is said to contain ⅛ grain hydrochloric acid. This amount is equivalent to 0.002584 gm. (1/25 grain) absolute hydrochloric acid. Analysis demonstrated that each tablet contains about 0.00267 gm. hydrochloric acid (absolute HCl) or essentially the amount claimed. The average dose of diluted hydrochloric acid United States Pharmacopeia is 1 c.c., equivalent to 0.1049 gm. absolute hydrochloric acid. To obtain this quantity from the above preparation the patient would be required to swallow more than three dozen of the tablets.

WM. S. MERRELL CHEMICAL COMPANY

"DIGESTIVE AROMATIC, 5 GRAINS"

"Pepsin	80 parts
"Pancreatin	10 parts
"Diastase	1 part
"Acid Lactic	1 part
"Acid Hydrochloric	3 parts
"Aromatic Powder	5 parts

Calculation shows that each tablet should contain about 0.0031 gm. of absolute hydrochloric acid. The analysis indicated that each tablet contains about 0.0030 gm. hydrochloric acid (absolute HCl) in protein combination, or practically the amount claimed. One pharmacopeial dose of hydrochloric acid is contained in 35 of the tablets.

PARKE, DAVIS & COMPANY

"DIGESTIVE AROMATIC"

"Saccharated Pepsin	4	grains
"Pure Pancreatin	1	grain
"Diastase	¼	grain
"Aromatic Powder	¼	grain
"Lactic Acid.		
"Hydrochloric Acid.		

Dose: 1 to 3 tablets.

Chlorid is present in small amounts, but quantitative examination indicated that hydrochloric acid, either free or in protein combination, is absent. An ammonium salt is present in small quantities.

SHARPE & DOHME

"DIGESTIVE AROMATIC"

"Pepsin, Sacch., U. S. P.	4	grains
"Pancreatin, pure	1	grain
"Diastase	¼	grain
"Aromatic Powder	¼	grain
"Lactic Acid	q. s.	
"Hydrochloric Acid	q. s.	

Small quantities of chlorid are present. Quantitative examination indicated that hydrochloric acid in protein combination is present only in very small amounts, each tablet containing but about 0.00034 gm. of absolute acid, or about 0.34 per cent. of the pharmacopeial dose. Ammonia is absent. Inasmuch as more than 300 of these tablets would be required to furnish a pharmacopeial dose of hydrochloric acid, this firm's interpretation of the expression "q. s." would prove interesting.

TRUAX, GREENE & COMPANY

"SYNERGIA"

"Synergia" is claimed to be composed of "pepsin, pancreatin, veg. diastase, lactic acid, hydrochloric acid and aromatics; dose, 1 to 3 tablets." The specimen contains no hydrochloric acid, either free or protein combination. A trace of ammonia and small quantities of chlorid were found.

1. U. S. Pharmacopeia, 8th revision, p. 334; THE JOURNAL A. M. A., Feb. 2, 1907, and Feb. 9, 1907.
2. Hemmeter, Diseases of the Stomach, Edition 3, p. 250.
3. The details of the analysis will be sent on receipt of a stamped envelope; they will also be published in the annual report of the Chemical Laboratory.

THE FRASER TABLET COMPANY

"Pepsin Sacch.	80 parts
"Pancreatin, Pure	10 parts
"Diastase	1 part
"Lactic Acid.	1 part
"Hydrochloric Acid	3 parts
"Aromatic Powder	6 parts

Dose: 1 or 2 tablets.

"Each tablet represents (5) grains of the above mixture."

According to the formula hydrochloric acid (31.9 per cent. absolute HCl) represents 3 parts in 101 of the preparation from which the tablets are made. Each tablet (containing 5 grains of the mixture) should have 0.00307 gm. absolute hydrochloric acid. Analysis showed that each tablet contains hydrochloric acid in protein combination equivalent to an average of 0.003066 gm. absolute hydrochloric acid, or essentially the amount claimed. It would be necessary to give 34 tablets to administer a pharmacopeial dose of hydrochloric acid.

EDITORIAL NOTE: The above indicate that the use of such tablets is irrational, unscientific and should be condemned. The only constituent of these tablets, other than the aromatics, which might possibly be of benefit in stomach troubles, is the pepsin. But even if it be assumed that the diastase and pancreatin could exert their characteristic effects, their aid to digestion (metabolism) would be but slight, because their amounts in the tablets are too small to be of any value.

It is claimed that the tablets contain disastase in amounts varying from 1/20 to 1/4 grain. Assuming the diastase used to be of first-class quality, i. e., capable of converting 200 times its own weight of starch into soluble products, the quantity in one tablet would be capable at the most of digesting but from 10 to 50 grains of starch, an amount equal at the most to but a small spoonful of oatmeal or a very dainty bite of bread. In the same way the quantity of pancreatin is insufficient to be of any material aid in digestion should it in some way escape destruction in the stomach and still retain its full activity when it reaches the alkaline juices of the intestines. One grain of pancreatin of full United States Pharmacopeia strength will digest only 25 grains of starch or the proteids in about 100 c.c. of milk.

Saccharated pepsin, which was formerly official, was required to digest 300 times its own weight of moist egg albumin, while the pepsin that is now official is required to digest ten times that amount, or 3,000 times its own weight. It is evident, therefore, that the tablets should contain sufficient pepsin to digest appreciable amounts of protein. No intelligent physician would prescribe these tablets simply for the pepsin they contain or are supposed to contain; if he wanted to give pepsin he would prescribe the drug in the simple form.

Clinical experience has shown that in the majority of cases of so-called dyspepsia the stomach contents contain too much rather than too little hydrochloric acid, and wherever there is a sufficiency of acid there is usually no decrease in the secretion of pepsin. In many of such cases, too, digestion is normal, or even more active than normal, but even when it is imperfect there is seldom any lack of pepsin.

Insufficient digestive power is most often due to a deficiency of hydrochloric acid and not to lack of pepsin in the stomach contents. In the tablets under consideration, however, hydrochloric acid is present—if at all—in the most ridiculously minute quantities; quantities that are so small as to preclude any therapeutic effect except that due to the psychic element.

These tablets, with their six or more ingredients, are typical "shotgun prescriptions." Such prescriptions catch the unthinking doctor as well as the self-drugging public, for, while clinical experience and physiologic experiments have demonstrated that the old ideas regarding the value of these digestives and ferments were erroneous, the public and many members of the medical profession still seem to be influenced by the old theories.

In conclusion we must not lay all the blame on the manufacturing firms for supplying these absurd combinations; the physician who prescribes them should assume a large share of it. If the doctors did not use them the manufacturing concerns would soon stop putting them on the market. We hope, however, that those manufacturing concerns that like to be classed as reputable will cease to disgrace their catalogues with what they know to be therapeutic absurdities.

Lung Germine

To the Editor: I was much interested in the article on "Lung Germine" that appeared in THE JOURNAL, Aug. 6, 1910. Two years ago, when I was at Adell, Wis., a young man, aged 26, came to my office complaining of "lung trouble." His temperature was 103 F., pulse 120, appetite poor and he had lost weight in about eight weeks from 170 to 130 pounds. He complained of great weakness, shortness of breath, persistent cough and sleeplessness. I found a tuberculous patch in the right upper lobe and the examination of the sputum was positive. I put him on the open air treatment, rest, diet, etc. Six months later his temperature was normal, his weight had increased from 130 to 165 pounds, expectoration and cough very much decreased; he slept well, had a ravenous appetite and was able to take long walks without tiring himself.

About this time he called on me and wanted to know when he could go to his work again as bookkeeper. I advised him to wait another six months. This apparently seemed too long for him and he got in correspondence with the Lung Germine Co., and began to take their Lung Germine. Immediately after he commenced using it, he became weaker, began to show signs of cyanosis in the tips of his fingers and ears; was very restless, lost appetite and could not sleep. From day to day he grew worse, but on communicating with "Dr." C. R. Wendt of the Lung Germine Company, he was told to keep right on with the medicine as these were favorable symptoms and he surely would get well. In 10 or 12 days I was called in to see him. I found him very cyanosed over the entire body with frothy expectoration from the mouth and nose and very rapid breathing. Five minutes later he was dead. I called a coroner's inquest and signed the death certificate; cause of death due to the use of Lung Germine.

After the patient's death, I wrote to the Michigan State Board of Medical Examiners and asked for information concerning this Dr. C. R. Wendt. The secretary informed me that Dr. C. R. Wendt had no license to practice medicine in Michigan. C. U. SENN, M.D., Milwaukee, Wis.

COMMENT: The experience of our correspondent seems to verify the statement made in the exposé of this wretched fraud, *viz.*, that the nostrum is not only worthless but positively dangerous. If it were possible to get information on the point, we do not doubt that it would be found that hundreds of poor victims had had their lives very materially shortened by the use of this vile concoction.

"Every man who trades in this market, whether he pockets the profits of the maker, the purveyor or the advertiser, takes toll in blood. He may not deceive himself here, for here the 'patent medicine' business is nakedest, most cold-hearted. Relentless greed sets the trap and death is partner in the enterprise."

Correspondence

One Medical Aspect of the Prize Fight

To the Editor: The medical man may read much between the lines as to the reason for the defeat of a former champion in a recent famous prize-fight. There was much more at the bottom of this inglorious disaster than mere inability to get back into training.

The stress laid on the reports, at the time of the early arrangements for the fight, that the former champion had been examined by noted medical men to see if he could expect to get into good training again, together with the current rumors as to the habits of dissipation common to this class of athletes, would give ground for the suspicion that there may have been a definite and specific reason for such a careful preliminary examination. One noted ring follower states that no man with a normal brain could have been so utterly helpless before an opponent; another that "he was as helpless as an old woman;" another writer states that the victor delivered fifty-five blows while the loser gave but fourteen, and that not one of these did any particular damage. One of the seconds states in an interview that the loser

swayed so in walking down the aisle to the ring that he (the second) twice supported the champion by laying a hand on each shoulder to keep him from falling. The picture published by a prominent national weekly shows the fighter with his feet spread so far apart that the two legs defined an equilateral triangle. The prize-fighter complained afterward that he saw double during the fight; that he could not estimate the distance of his opponent; that he saw plenty of openings for good blows but could not get his fist there in time. The papers were filled with reports of the attempts of reporters and visitors to see the champion in his boxing practice, but he would not box before prying eyes, even practicing at 3 a. m. to avoid observation.

Such evidences of mental failure, ataxia and incoordination point almost certainly toward some degenerative process affecting the nervous system, the cause of which it is not difficult to imagine.

J. N. HALL, M.D., Denver.

Fixing the Eyeball in Cataract Extraction

To the Editor: Since the publication of my paper, read at the St. Louis meeting, I have been informed by my friend, Dr. Ziegler of Philadelphia, that my method of fixing the eyeball in cataract extraction was first resorted to by Macnamara. The following is quoted from page 54 of the fourth edition of his book: "Suppose the right eye is to be operated on; the surgeon, standing behind his patient, with a pair of fixing forceps, seizes a fold of the conjunctiva, together with the tendon of the internal rectus, so as to have a steady, firm hold on the eyeball." On page 56 he mentions the fact that the tendon grasp is continued while he dislocates and delivers the cataract with a scoop. Of course I must surrender my claim of originality, so far as *the grasp of the tendon of the internal rectus muscle is concerned.* My astonishment is that this method, although introduced prior to 1882, disappeared from both practice and literature, and I knew nothing about it until it occurred to me to put it into practice. There is no other method of fixation comparable to it. My other claims, as made in my paper, have not been refuted, and I am sure cannot be. Please publish this as a full surrender of my claim on fixation of the globe by a grasp of a tendon of the internal rectus.

G. C. SAVAGE, Nashville, Tenn.

The Dependence of Neurology on Internal Medicine *

To the Editor: I think the article by Drs. Joseph Collins and Pearce Bailey, of New York (THE JOURNAL, July 30, 1910, p. 393), was read with great interest and received extensive comment by those of us who are interested in the teaching of neurology. As a general proposition most of the premises advanced by the authors of this article are correct. All of us are agreed that neurology has been neglected, both in the lecture room and hospital ward, but the statement that "In all America there is scarcely a general hospital with neurologic wards worthy of the name, etc.," will not hold water. So with the statement "The profession who teaches them having no hospital patients of their own can demonstrate only such patients as are able to walk to the clinic;" and so on throughout the entire article are many statements that are really misleading and do an injustice to some of our neurologists and general hospitals.

Last year I did neurologic work at the University of Pennsylvania. I found the neurologic wards in Blockley Hospital properly organized and containing over four hundred patients; among this number could be found all of the ordinary nervous diseases and many of the unusual and rare ones. These wards were organized in 1877 by Dr. Charles K. Mills, and all of the material found in them is available for teaching purposes by the medical colleges of Philadelphia; and for many years ward classes have been a prominent feature in neurologic teaching in this hospital.

The attending neurologic staff at Blockley has an equal standing with the attending physicians and surgeons. Cases are assigned directly to them; they are studied by separate interns and the department of neurology is just as much an independent unit of the organization controlling the hospital, as is the surgical or medical. Post-mortems are conducted under the direction of the attending neurologist, and the material is properly worked up and studied by his assistants and the hospital pathologist.

Neuropathology is comparatively new in America; but this branch is now receiving careful attention in all of our medical schools. I have no doubt that within a few years the courses in this branch offered to students in America will compare very favorably with those given in the laboratories abroad; in fact I have been told by men who have taken extensive work in Europe that the work of American investigators and teachers of neurology is attracting attention and receiving the favorable consideration to which it is entitled.

So while we cannot point to any endowed institutions for the special study of nervous diseases, let us be thankful that most of our new municipal hospital boards are recognizing the importance of giving this branch more attention, and buildings are being constructed with the idea of providing for the better care and proper study of nervous cases, and that competent neurologists are being appointed on the staffs holding equal rank with the surgeon and internist.

R. E. CASTELAW, Kansas City, Mo.

* Another letter on this subject is published in THE JOURNAL Aug. 13, 1910, page 613.

Registration of Foreign Physicians

To the Editor: Dr. Hoenes in his letter on this subject (THE JOURNAL, Aug. 6, 1910, p. 520) certainly makes an exceedingly important, though neglected, point. During the development of North Dakota, Canadian physicians rushed in, and now very largely occupy the land. What is true of North Dakota is probably true of other northern states. But when one of us wants to get into some virgin territory in Canada, he is blocked at the very start. This matter should be taken up by our legislatures. I hope that you will use your influence and call attention to it often.

C. E. MCREYNOLDS, M.D., Goodrich, N. D.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

WHAT IS THE DISEASE?

To the Editor:—A peculiar disease has been observed in a family. It resembles hoof and foot disease in animals. The attack is sudden; the disease starts between the toes and spreads to the heel. Itching, large vesicles which run together, high fever, delirium, and a very bad odor, like decayed animal matter, are features. The pain after four days extends up to the leg. The disease seems to be highly infectious. What can it be?

F. P. DORSEY, Hartington, Neb.

CAPITALIZATION IN PRESCRIPTIONS

To the Editor: In writing the following in prescriptions should the I and P be capital letters?

℞ Fluidextracti cannabis indicæ
Balsami peruviani

P. W. BUSHONG, Pittsburg, Pa.

ANSWER: In writing the Latin of prescriptions there is a tendency to follow national usage. Thus in foreign pharmacopeias and prescriptions, nouns are frequently capitalized as in the native language, while the adjectives, even when derived from proper names, begin with a lower-case letter. On the other hand, the custom in Latin texts is to capitalize the adjectives derived from proper names, i.e., *populus Romanus.* This would seem to afford authority for beginning the words referred to in the query with capitals. Most books on medical Latin capitalize the second term of a pharmaceutic title in prescriptions as a rule, so that they afford no guide in the particular case under discussion. The usage of works on pharmacology is divided but the majority print these words with lower-case letters. There is a tendency in English for the proper adjective to change its capital initial to lower-case after long usage, and this may account for the similar tendency in the Latin of prescriptions. We may conclude therefore that the preponderance of the best usage is in favor of using lower-case letters.

ELECTRIC ANESTHESIA

To the Editor:—Please give references to be found in medical literature, if any, giving facts concerning the use of electricity as an agent for producing anesthesia. D. M.

ANSWER.—Robinovitch, L. G.: Electric Anesthesia, *Jour. Ment. Path.*, viii, No. 3, 1908.

Leduc, S.: Electric Sleep. *Presse Médicale*, 1907, xv, 129. Abst. in THE JOURNAL, April 6, 1907, p. 1220.

Tait, D., and Russ, R.: Electric Sleep, THE JOURNAL, Nov. 13, 1909, p. 1611.

Johnson, M. M.: Electric Anesthesia, *Med. Rec.*, April 23, 1910; abstr. in THE JOURNAL, May 7, 1910, p. 1577.

ACUTE INDIGESTION AND SUDDEN DEATH

To the Editor:—Please give me references to some of the latest literature on so-called acute indigestion as the cause of sudden death. W. H. J.

ANSWER.—We find no references to this subject in recent literature. Brouardel ("Death and Sudden Death," Edition 2, 1902) refers to cases in which sudden death was supposed to be due to acute indigestion, but concludes that the evidence that indigestion was the sole or principal cause is insufficient. He says (p. 274), "I have read all the cases which authors have recorded, but I have not met with a single case in which preexisting lesions in other organs than the stomach were not sufficient to account for death; in most cases the patient had some renal affection, or was convalescent from typhoid fever."

X-RAY STERILITY

To the Editor:—Is the sterility produced by the *x*-ray permanent, or only temporary; and how long exposure will produce the same? Does it affect male and female alike? B. Y.

ANSWER.—The duration of sterility produced by the *x*-ray depends on the length of exposure, the distance of the tube, etc. The effect will be permanent if the exposures are of sufficient duration. The organs of the female are better protected from the rays than are those of the male, but, aside from this, both sexes are affected.

The Public Service

U. S. Public Health and Marine-Hospital Service

Changes for the 7 days ended Aug. 10, 1910:

Guiteras, C. M., surgeon, granted 4 days leave of absence from Aug. 9, 1910.

Stimpson, W. G., surgeon, granted 20 days leave of absence from Aug. 11, 1910.

Blue, Rupert, surgeon, granted 8 days leave of absence from Aug. 7, 1910.

Moore, Dunlop, passed asst.-surgeon, granted 14 days leave of absence from Aug. 10, 1910.

Fox, Carroll, passed asst.-surgeon, relieved from duty in the Hygienic Laboratory and directed to proceed to Manila, P. I., and report to the Chief Quarantine Officer for duty, Aug. 5, 1910.

Vogel, C. W., passed asst.-surgeon, granted 15 days leave of absence from Aug. 10, 1910.

Glover, N. W., passed asst.-surgeon, leave of absence for 10 days from July 25, 1910, amended to read 3 days from July 25, 1910.

Bahrenburg, L. P. H., passed asst.-surgeon, granted 6 days leave of absence from July 26, 1910, on account of sickness.

Cleaves, F. H., acting asst.-surgeon, granted 6 days leave of absence from Aug. 1, 1910.

Deerhake, Wm. A., acting asst.-surgeon, granted 5 days leave of absence in July, 1910, under paragraph 210, Service Regulations.

Elfers, J. G., acting asst.-surgeon, granted 30 days leave of absence from Aug. 8, 1910.

Hart, George C., acting asst.-surgeon, granted 12 days' leave of absence from Aug. 18, 1910.

Horning, Henry, acting asst.-surgeon, granted 7 days' leave of absence from Aug. 3, 1910, under paragraph 210, Service Regulations.

McLarty, A. A., acting asst.-surgeon, granted 10 days' leave of absence from Aug. 1, 1910.

Onuf, B., acting asst.-surgeon, granted 8 days' leave of absence from Aug. 16, 1910.

Richter, H. C., acting asst.-surgeon, granted 30 days leave of absence from Aug. 1, 1910.

Rush, John O., acting asst.-surgeon, granted 14 days' leave of absence from Aug. 10, 1910, with pay, and 4 weeks' leave of absence from Aug. 24, 1910, without pay.

Savage, Walter L., acting asst.-surgeon, granted 30 days' leave of absence from Aug. 12, 1910.

Schwartz, Louis, acting asst.-surgeon, granted 7 days' leave of absence from Aug. 8, 1910, under paragraph 210, Service Regulations.

Stevenson, J. W., acting asst.-surgeon, leave of absence for 30 days from Aug. 3, 1910, amended to read 30 days from Aug. 8, 1910.

Stewart, W. J. S., acting asst.-surgeon, granted 1 month's leave of absence without pay from July 23, 1910.

Townsend, W., acting asst.-surgeon, granted 8 days' leave of absence from July 28, 1910.

Wallace, C. R., acting asst.-surgeon, granted 14 days leave of absence from Aug. 22, 1910.

Medical Department, U. S. Army

Changes for the week ended Aug. 13, 1910.

Boyer, Perry L., capt., relieved from temporary duty at Fort Mason, Cal., and as attending surgeon, San Francisco, and on expiration of present sick leave of absence will proceed to Fort Clark, Tex., for duty.

Collins, C. C., major, on expiration of present leave of absence will proceed to Fort Robinson, Neb., for duty.

Church, James R., major, relieved from duty at Fort Robinson, Neb., and ordered to Fort Ontario, N. Y., for duty.

Gray, William W., col., ordered to proceed to Omaha, Neb., and report Sept. 1, 1910, for temporary duty as Chief Surgeon, Department of the Missouri.

Brechemin, Louis, col., relieved from duty in the Philippines Division, and will proceed on the transport to sail from Manila, P. I., Jan. 15, 1911, to San Francisco. Colonel Brechemin will proceed thence to Omaha, Neb., for duty as Chief Surgeon, Department of the Missouri, relieving Colonel William W. Gray, Medical Corps, who will return to his proper station.

Brownlee, Charles Y., major, on expiration of leave of absence will proceed to Fort Des Moines, Iowa, for duty at that post.

Vose, William E., major, relieved from duty at Fort Des Moines, Iowa, and ordered to Jackson Barracks, La., for duty at that post.

Usher, F. M. C., major, relieved from duty at Jackson Barracks, Mo., and ordered to Fort Sam Houston, Tex., for duty at that post.

Metcalfe, R. F., capt., on expiration of leave of absence will proceed to the Army General Hospital, San Francisco, Cal., for duty.

Vedder, Edward B., capt., detailed as a member of board for the purpose of studying tropical diseases as they exist in the Philippine Islands, vice Captain E. D. Kilbourne, Medical Corps, to take effect on departure of Captain Kilbourne from the Philippine Islands.

Casaday, George H., dental surgeon, relieved from duty at Presidio of Monterey, Cal., and will proceed from San Francisco, Sept. 5, 1910, to the Philippine Islands, for duty.

Graham, George D., dental surgeon, relieved from duty at Fort Leavenworth, Kan., and will proceed from San Francisco, Cal., Sept. 5, 1910, to Fort Shafter, H. Ty., for duty. Dental Surgeon Graham will stand relieved from Fort Shafter about December 15, and will then proceed to the Philippine Islands for duty.

Baker, Frank C., major; O'Connor, R. P., major, and Davis, William R., capt., August 4, will proceed at the proper time to the Camp of Instruction at Ft. Benj. Harrison, Ind., for duty, and on the completion thereof will return to their proper stations.

Smart, William, capt., August 4, granted 2 months' leave of absence about Sept. 7, 1910.

de Krafft, S. Chase, M.R.C., August 4, relieved from duty (active) in that Corps, to take effect Aug. 14, 1910.

Springwater, Samuel A., M.R.C., August 4, granted leave of absence to and including Sept. 4, 1910. First Lieutenant Springwater is honorably discharged from the service of the United States, to take effect Sept. 4, 1910, his services being no longer required.

Kremers, E. D., lieut., August 2, ordered to proceed from Presidio of San Francisco to Ft. Miley, Cal., for temporary duty.

Casper, Lieut. (Joseph), August 1, left Ft. Du Pont, Del., en route to Pine Camp, N. Y., for duty.

Lynch, Edward C., M.R.C.; Ferenbaugh, Thomas L., lieut.; Hughes, Leonard S., M.R.C., August 4, report for duty at Camp E. S. Otis, Wyoming.

Craig, Charles F., capt., August 5, directed to proceed to New York City and to New Haven, Conn., on official business pertaining to the Medical Department.

Hess, Louis T., Waterhouse, S. H., Geddings, Edward F., majors, August 4, assigned to duty as Inspector-Instructors at state encampment at Gettysburg, Pa., from Aug. 11 to 20, 1910.

Gibson, Paul W., M.R.C., July 30, left Ft. Yellowstone, Wyo., on practice march with Troop F, Fifth Cavalry.

Bundesen, H. N., M.R.C., August 4, left Ft. D. A. Russell, Wyo., en route to Camp E. S. Otis, Wyo.

Connor, C. H., major; Owen, Leartus J., capt.; Beery, Harry R., lieut., July 28, designated for duty at the Camp of Instruction, Fort Benjamin Harrison, Ind.

Vose, William E., major, Aug. 5, 1910, orders to duty, Camp of Instruction, Ft. Riley, Kan., revoked.

Smith, Allen M., major, August 1, in addition to his other duties, will assume charge of the office of the Chief Surgeon, Department of Texas.

Harris, H. I., M.R.C., August 9, reported for temporary duty at Pine Camp, N. Y.

Fauntleroy, P. C., major, August 4, detailed for duty as Inspector-Instructor, organized Militia of Illinois, encampment at Peoria, Ill., Aug. 20-27, 1910.

Hall, James F., capt., Aug. 5, 1910, ordered to make the physical examinations of captains and lieutenants on duty at Rock Island Arsenal, Ill.

Graham, George D., D.S., August 8, granted 10 days' leave of absence, Aug. 20, 1910.

Ingalls, R. E., dental surgeon, August 2, on completion of duty at Ft. Wingate, N. M., will proceed to Ft. Apache and Huachuca, Ariz., thence to Whipple Barracks, Ariz., for duty.

Hallett, H. J., M.R.C., August 9, reported at Fort Hamilton, N. Y., for temporary duty.

Register, E. C., M.R.C., August 11, reported for temporary duty at Ft. Michie, N. Y.

Maguire, David F., M.R.C., August 10, left Ft. Myer, Va., en route to Ft. McHenry, Md., for temporary duty, and reported at Ft. McHenry, Md., Aug. 11, 1910.

Robbins, Chandler P., major, August 8, left Ft. McHenry, Md., en route to Ft. Monroe, Va., for temporary duty.

Clayton, J. B., major, August 10, granted leave of absence for one month and fifteen days, about Oct. 1, 1910.

State Boards of Registration

North Dakota July Report

Dr. H. M. Wheeler, secretary of the North Dakota State Board of Medical Examiners, reports the written examination held at Grand Forks, July 5-7, 1910. The number of subjects examined in was 14; percentage required to pass, 75. The total number of candidates examined was 16, of whom 13 passed and 3 failed. Eleven candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Northwestern Univ. Med. School (1903) 80	(1910)	82, 86, 91
College of Physicians and Surgeons, Chicago	(1910)	89
Harvard Medical School	(1903)	88
Univ. of Mich., Dept. of Med. and Surg.	(1903)	90
Hamline University	(1909)	76, 83, 85
Jefferson Medical College	(1910)	82
Marquette University, Milwaukee	(1910)	78
University of Toronto, Ontario	(1908)	82

FAILED

Chicago Physiomedical College	(1896)	*
Indiana University	(1909)	*
Queen's University, Kingston, Ontario	(1905)	*

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Illinois Medical College	(1907)	Wisconsin
College of Phys. and Surg., Chicago (1905)	(1908)	Illinois
Northwestern University Medical School	(1908)	Illinois
Jenner Medical College	(1906)	Illinois
Detroit College of Medicine	(1896)	Wisconsin
University of Minnesota, College of Medicine, (1903)	(1905)	Minnesota
University of Michigan, Dept. of Med. and Surg.	(1907)	Michigan
Barnes Medical College	(1906)	Illinois
McGill University, Canada	(1906)	Minnesota

* No percentage given.

The following questions were asked:

ANATOMY

1. Describe the hip joint, naming ligaments. 2. Give a description of the femoral artery and its relations. 3. Describe circulation of blood through the heart. 4. Describe the scapula. 5. Describe the axilla and what does it contain?

PHYSIOLOGY

1. Give the physiology of the kidneys. 2. Describe the process of digestion of fats. 3. What is the function of bile? 4. How is the waste material of the body thrown off? 5. Describe the function of the eye.

HISTOLOGY

1. Describe karyokinesis. 2. Describe the different cells found in the blood. 3. Describe a cross-section of the stomach at pyloric end. 4. Describe a cross-section of the middle of a long bone 5. Give the histology of the kidney.

PATHOLOGY

Answer any five questions: 1. Describe atrophy and degeneration as separate pathologic conditions. 2. Describe a thrombus, embolus, an infarct. 3. Differentiate between a lipoma and malignant tumor. 4. Define inflammation. 5. Describe the pathologic changes in lung tissue resulting from tubercular infection. 6. Differentiate between sapremia and septicemia. 7. What are the postmortem appearances in typhoid fever? 8. Give the pathology of leukemia. 9. What pathologic conditions produce necrosis? 10. Describe the process of fatty degeneration.

OBSTETRICS

1. Describe the pelvic straits. 2. Give indications and technic of a high delivery. 3. Diagnose and treat a case of placenta previa. 4. What is your idea regarding causes of puerperal sepsis? 5. What would lead you to suspect some retained placenta in an old case (two weeks after delivery)? Give your treatment.

EYE AND EAR

1. Give prophylaxis and treatment of ophthalmia neonatorum. 2. Give prognosis and treatment of a cornea in which is imbedded a hot cinder. 3. Define (a) astigmatism, (b) blepharitis. 4. Define and give etiology of glaucoma. 5. Symptoms and treatment of chronic nonsuppurative median otitis. 6. Give indications for mastoid operation. 7. Give anatomic divisions of the ear and contents of each. 8. What is the best method of removal of a foreign body—as a pea—from the ear?

CHEMISTRY AND TOXICOLOGY

1. Define the followings terms as applied to chemistry: Reagent, reaction, insolubility, volatility, valency, atomicity. 2. Describe a method of detecting free HCl in stomach contents. 3. Describe a quantitative test for urea. 4. Give the Esbach method for quantitative test for albumen in urine. 5. Give the composition and physical properties of good drinking water. 6. Symptoms and treatment of poisoning by carbolic acid, corrosive mercury, opium, strychnin and arsenic.

PRACTICE

Answer any five questions: 1. Give etiology, symptoms and treatment of autointoxication. 2. Give diagnosis of cerebral hemorrhage. 3. Differentiate between typhoid fever and malaria. 4. What are the symptoms of intestinal perforation in typhoid fever? 5. Give symptoms and treatment of measles. 6. Definition, symptoms and treatment of chlorosis. 7. Differential diagnosis between mitral stenosis and regurgitation. 8. Write a prescription and give diet list for chronic constipation. 9. Etiology and treatment of hay fever. 10. Differentiate between gastritis, carcinoma and ulcer of stomach.

PREVENTIVE MEDICINE

1. By what method can we prevent the occurrence of diseases? 2. How prevent pitting in small-pox? Ring worm from spreading? 3. In eruptive fevers, as small-pox, scarlet fever and measles how guard against or prevent? 4. Prevention of scurvy. 5. What preventive measures can we take to check the spread of venereal diseases? 6. Give the means of propagation and the preventive measures in typhoid fever. 7. Can ophthalmia neonatorum be avoided and what would be your method of prevention? 8. What preventive measures can you suggest for cerebrospinal meningitis? 9. Who appoints the health officers, state, county and city, and what qualifications are required? 10. Diarrhea and dysentery, how caused and can they be prevented?

MATERIA MEDICA

1. What is an acid? Composition of Dover's powder. 2. What preparations of mercury are employed as cathartics. 3. What are agents employed in the treatment of disease called? 4. Through what medium is the influence of medicine exerted on remote parts of the body? 5. How does the time of administering medicines modify their action? 6. Name three effective emetics. 7. What drugs cause eruptions of the skin? 8. What are the medicinal uses of alcohol and what effect have they on diseased conditions? Do you employ them, if so why? 9. What are the uses of narcotics? Name the principal ones. 10. Give the maximum dose for an adult, of strych. sulph., atropia, chloral, morphin, pilocarpin.

MEDICAL JURISPRUDENCE

1. (a) What are the duties of the State Board of Medical Examiners of the State of North Dakota? (b) What does the statute of this state command that the recipient of a license from this board to practice medicine and surgery in this state shall do with it? (c) What is the penalty, if any, for practicing medicine in the state without first obtaining license from this board? 2. (a) What is medical expert testimony? (b) On what is it generally based? (c) Who is competent to give it? (d) Should a physician and surgeon hesitate to give expert testimony, in a worthy cause and after careful preparation on the issue involved? 3. A young woman, pregnant two months, in company with her parents, the man responsible for her condition, and the states attorney of the county in which they all live, called on a physician in this state and requested him to abort her. All agreed that from a social standpoint it was for the best interests of all concerned that the physician comply with the request, and each and all further promised in writing that no matter what the consequences might be, the physician should be excused from civil and criminal liability. The physician complied with the request. She rapidly recovered and all interested were pleased. The physician received $500. Was he guilty of a crime under the laws of this state? If so what is the punishment? If you answer in the affirmative give your reasons. 4. A regularly licensed physician and surgeon is called by a farmer 15 miles from the physician's office and in the country, at 2 o'clock in the morning. At the time there was a heavy downfall of cold rain. The roads were bad, but not impassible. The physician is supplied with a rig suitable and convenient with which to make the trip. The farmer tells him his wife has suffered an injury by accidentally falling from a mowing machine in front of the knife, and that a limb was severed at the knee; that the wound was bleeding profusely and it seemed impossible to stop it. The farmer was a tenant and without any means whatever, and unable to pay the doctor then or in the immediate future, which fact the doctor well knew. There was no other physician within 50 miles of the farmer's home. The doctor refused to respond to the call and go to the relief of the suffering woman, solely on the farmer's inability to pay him for his services and because it was raining. The farmer was unable to get into communication with any other physician and the woman survived 20 hours, when she died of hemorrhage and blood poison. A post mortem was held and 5 competent and creditable physicians declared that if the woman had had medical attendance within nine hours after the accident she would have survived. Was the doctor guilty of any crime under the law of this state? If so what was it, and what is its punishment? Would a civil action lie against him for damages on behalf of the surviving husband? 5. (a) What is malpractice? (b) What degree of skill does the law require a physician and surgeon to exercise in the practice of his profession? (c) What is the statutory limitation of the prosecution of an action against a physician and surgeon for damages account malpractice in this state?

DISEASES OF WOMEN AND CHILDREN

1. Symptoms, subjective and objective retroversion uteri, treatment of same. 2. Pelvic hematocele, symptoms, causes and treatment. 3. Symptoms, subjective and objective of laceration of cervix uteri of long standing. 4. Symptoms and complications of gonorrhea in female. 5. Dysuria in female, causes and treatment. 6. Symptoms and treatment capillary bronchitis. 7. Causes and treatment enuresis. 8. How feed an infant of three months deprived of mother's milk? 9. Treatment of enterocolitis. 10. Treatment of pertussis.

NERVOUS DISEASES

1. Differential diagnosis of cerebral hemorrhage and tumor. 2. What is myxedema? Give symptoms and treatment. 3. Define migraine. Give causes, symptoms and treatment. 4. How would you treat a case of delirium tremens? 5. Symptoms, prognosis and treatment chorea. 6. Infantile paralysis; (a) What part of cord is involved? (b) Give symptoms and treatment in full from the onset.

SURGERY

1. How would you diagnose a subcoracoid dislocation? Name method employed in its reduction, with the different steps in the operation. 2. Give your treatment in detail for fracture of humerus just above the condyles. 3. Give your method of treatment for a nail wound of foot. 4. Differential diagnosis of intracapsular fracture and dorsal dislocation of head of femur and give your treatment for this fracture in a woman 70 years of age. 5. How would you diagnose a case of complete inguinal hernia from a hydrocele, and describe the radical cure for hydrocele. 6. Describe in full Bassini's method of operation for the radical cure of hernia.

Rhode Island July Report

Dr. Gardner T. Swarts, secretary of the Rhode Island State Board of Health, reports the written examination held at Providence, July 7-8, 1910. The number of subjects examined in was 7; total number of questions asked, 70; percentage required to pass, 80. The total number of candidates examined was 10, of whom 6 passed, 3 failed and one withdrew. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
College of Physicians and Surgeons, Baltimore	(1909)	84.1
Tufts College Medical School	(1910)	84
Boston University	(1899)	80.3
Columbia Univ., College of Phys. and Surg.	(1878)	80
Jefferson Medical College	(1908)	93.3
University of Vermont	(1910)	82.9
FAILED		
Baltimore Medical College	(1909)	77.5
University of Maryland	(1910)	69.9
Laval University, Canada	(1905)	72.5

Medical Economics

Insurance and Industrial Cooperation for the Promotion of Public Health

The importance of systematic and widespread efforts for the improvement of public health are evidently appreciated by the insurance interests—both the old-line and the fraternal organizations. A number of the leading old-line companies have inaugurated campaigns among their policy-holders with this object in view. In a recent number of the *Metropolitan*, an insurance publication, appear articles on flies, the refrigerator, etc., as well as a reproduction of the now celebrated poster originated by the Florida Board of Health showing, with graphic but wholesome unpleasantness, the manner of life of the ordinary house fly.

An insurance company sent to its policy-holders a pamphlet on "Living and Sleeping in the Open Air," prepared by Dr. Thomas S. Carrington, assistant secretary of the National Association for the Study and Prevention of Tuberculosis. This pamphlet contains plans and photographs for sleeping porches and shelters adequate for use on roofs and in back yards. The details will make it easier for many persons to secure places for out-door sleeping.

Another company has issued a number of bulletins prepared by the Policy Holders' Health Bureau, established to assist in guarding the health and lives of the policyholders. One bulletin deals largely with the influence of alcohol on the death rate and the dangers of the use of alcohol as a beverage. Obesity, the hookworm disease, sanitary neglect in rural districts and hygienic hints for winter and early spring are also considered. Another is devoted largely to the dangers of "patent medicine" and the folly of self-drugging. Narcotic drug habits, hygiene of the mouth, malaria, yellow fever and health hints for hot weather are also considered.

The *Western Review*, a monthly journal devoted to the interests of fraternal benevolent societies, has established a "Department of Public Health," under the supervision of the medical director of one of the societies and has made this department a feature in several of its recent numbers.

A shoe company has issued a vest-pocket book "for the welfare of its employees," which praises the Safe and Sane Fourth idea, gives the text of the Massachusetts law on the subject, and supplies terse directions for treating Fourth of July accidents. For good measure instructions on the prevention of tuberculosis are added, and attention is called to the privilege of examination by the company's physician and of being cared for in a free bed which the company maintains at a certain hospital.

The increased attention paid to public health matters by business interests is of especial significance as it is an evidence of general recognition of the wastefulness of preventable sickness and disease and the economic value of good health.

Book Notices

DIE EXPERIMENTELLE PHARMAKOLOGIE ALS GRUNDLAGE DER ARZNEIBEHANDLUNG. Ein Lehrbuch für Studierende und Aerzte. Von Dr. Hans H. Meyer und Dr. Gottlieb, Professoren der Pharmakologie. Paper. Price, 12 marks. Pp. 483, with 62 illustrations. Berlin: Urban & Schwarzenberg, 1910.

This collection of the data of experimental pharmacology from the standpoint of medical practice forms a noteworthy contribution to pharmacology and treatment. While pharmacology from the point of view of pure science is to be regarded as a section of biology, from the medical point of view it is an applied science and finds its justification as a vital part in the equipment of the modern physician only when it considers the action of drugs in relation to the disease processes. Such a consideration necessitates an adequate fundamental conception of the normal physiologic processes and the manner in which they may be influenced by drugs, an understanding of the alterations in the normal which constitute the pathologic, and wise judgment in correlating drug-action with these altered processes. The task of correlating the data of pharmacology and pathology with the view of providing a rational basis of drug therapy is one of extreme difficulty.

In this work the authors adopt a classification of drug actions into two groups, organotropic, i. e., action influencing function, and etiotropic, i. e., action on causes of disease. As illustrating the present development of the science it is interesting to note that the greater part of the book is devoted to drugs possessing organotropic action. The consideration of these is subdivided, according to the function chiefly affected, into sixteen chapters. These include the pharmacology of motor nerve-ends, of the central nervous system, of sensory nerve-endings; of the vegetative (involuntary nervous) system, of the eye, of digestion, of uterine movement, of the circulation, of respiration, of renal function, of sweat secretion; of metabolism, of muscles, of the blood; of the heat-economy and of inflammatory processes. The consideration of etiotropic drugs is included in one chapter, which takes up the general antiseptics, specific antiseptics and concludes with a brief outline of serum therapy.

This method results in the concentration of the attention on the physiologic process under discussion. Nearly every chapter begins with a concise exposition of the physiology involved. The action of the drugs which affect the function is described and explained, and finally the alterations of the process in disease and the connection of the drug-action with this are indicated. The physiologic considerations are concise, illuminating and decisive; more dogmatic than would be allowable in a treatise on pure physiology. It is worthy of note that in many instances the reaction of an organ to drugs throws important light on the mechanism of its function, and in this respect the authors have contributed materially to physiology by pointing out such cases.

A short general chapter on the relation of drug-action to the vegetative nervous system is of great service in understanding the action of drugs on the particular organs controlled by it. The action of drugs on metabolism is presented only in outline, but the state of development of that field of pharmacology is such that its consideration is of necessity schematic; but there is left in the mind of the reader a clear, general conception of the effects produced by such drugs as iodids, phosphorus, arsenic, etc., which heretofore have so often been relegated to the mysterious realm of "alteratives." The discussion of circulatory conditions in which drugs may be indicated, and their rational application, is carried out under three broad headings—cardiac insufficiency, cardiac and vasomotor paralysis, and vascular spasm. One could wish that the authors had considered more specifically the nature of pathologic processes. It is evident that they regarded only broad discussions in this relation as within the scope of the book.

One might wish for a fuller explanation of the effects of such drugs as atropin, cocain and bromids on the central nervous system. Differences of opinion will arise as to some of the conclusions drawn; e. g., as to the identity of action of nicotin and pilocarpin on the heart, the action of morphin on sensory nerve-ends, the action of calomel in causing diu-

resis, etc., but one feels that the explanations advanced require serious consideration. It is disappointing to find American work so scantily represented, and it is difficult to believe that this is the result solely of lack of worthy research by American investigators. The discovery of anesthesia by subdural cocain injection is ascribed to Bier; no mention is made of the astonishing results on resuscitation obtained by Crile; of Sollmann's work on the kidney; of Embley's (English) work on the effects of chloroform on the inhibitory cardiac center, etc. On the whole, however, the references to the literature are a valuable and satisfactory feature of the work. The data regarding drugs, being grouped about the consideration of function, have received the logical arrangement, but at the inevitable cost of a scattering of information regarding any particular drug. To cite a single instance, the action of morphin is separately considered in eight different chapters. The toxicology of various drugs, and the preparations in which drugs are available, are given subordinate and sometimes anomalous place in this scheme. This does not affect the value of the book in its broadest application, but does limit its usefulness as an instrument of teaching in this country, at least. The student would find difficulty in getting from it a broad, consecutive understanding of all pharmacology, but the study of the book after a preliminary training in this subject according to our present methods, would make such training vital in the study of the treatment of disease.

MEDICAL ELECTRICITY AND RÖENTGEN RAYS. With Chapters on Phototherapy and Radium. By Sinclair Tousey, M.D., Consulting Surgeon to St. Bartholomew's Clinic, New York City. Cloth. Price, $7 net. Pp. 1116, with 750 illustrations. Philadelphia: W. B. Saunders Co., 1910.

In this work the author has undertaken to cover completely the subjects of the therapeutic and diagnostic uses of electricity, and Roentgen rays; not content with this he goes even beyond his title, and considers also the uses of radiant heat and radium. The work is an enormous mass of detail. The physics of electricity, as bearing on the medical uses of the agent, first comes in for extended consideration—over 250 pages. With this there is a very full description of apparatus. Then are given—not enumerating all topics—physiologic effects of electricity, electropathology, electrodiagnosis, ionic medication by electrolysis, physiologic and therapeutic effects of electromagnets, electricity in diseases of the nervous system, and high-frequency currents; to each of these is given a chapter or more. Phototherapy, *x*-rays with all of their apparatus and uses, and finally radium are then considered. One can hardly look in the vast fields for a topic which the author has not considered, but the inexperienced reader will find more difficulty in getting systematic instruction from the work than he will in getting isolated facts. Everything is given, without a sense of perspective as to the relative value of different parts, and the parts of the work are of very unequal merit. The consideration of apparatus, of electricity and *x*-rays in diagnosis are good; the therapeutic parts are much less satisfactory and are not, in our belief, a conservative guide.

THE DISEASES OF THE NOSE, MOUTH, PHARNYX AND LARYNX. A Text-Book for Students and Practicians of Medicine. By Dr. Alfred Bruck (Berlin). Edited and Translated by F. W. Forbes Ross, M.D., Late Civil Surgeon, His Britannic Majesty's Guards Hospital, London. Assisted by Friedrich Gans, M.D. Cloth. Price, $5. Pp. 615, with 217 illustrations. New York: Rebman Company [1910].

This book has been written to meet the needs of the general practitioner. Each of the four subjects is divided into a general and a special section, the former dealing with the anatomy, physiology, methods of examinations and general therapy, the latter dealing with the diseases pertaining to the subjects under discussion. The anatomic descriptions cover the essential points and are accompanied by good illustrations. The methods of examination are discussed in a way that will appeal to the general practitioner, who has not had special training in these fields. In dealing with the treatment of the different diseases, special emphasis has been laid on procedures that may be used by those who have not had the opportunity to become schooled in the technic of the more difficult operations. The arrangement of the material of this work is systematic, and the discussions are clear and concise, meeting admirably the needs of men in general practice.

Medicolegal

Giving Medical Treatment for Eyes, Practice of Medicine—Admissibility of Evidence—Advertising—Claiming to Be an "Ophthalmologist" No Defense

The Kansas City Court of Appeals says that the evidence in the case of State vs. Blumenthal (125 S. W. R., 1188), tended to show that the defendant had an office in a hotel, and that on his door was the sign, "Dr. H. M. Blumenthal;" that a woman went to his office and engaged him to treat her eyes, he telling her that she had a cataract, astigmatism, and other ailments of the eyes, which he treated by prescribing ointments or salves and eyewashes, for which he charged her $10; that he likewise furnished and fitted eyeglasses, for which he charged $15. The eye medicine was sent to her by her brother at one time and delivered personally by the defendant at several other times. In view of such evidence, there can be no doubt that the defendant was practicing medicine within the meaning of the law.

It was decided by the Supreme Court of Illinois (People vs. Smith, 208 Ill., 31) that a traveling optician who invited persons, by advertisements, who were afflicted with dizziness, neuralgia, etc., to visit him and obtain relief by purchasing spectacles, and disclaimed medical or surgical treatment, was not treating, operating, or prescribing for physical ailments under the statute of that state. That was no more than to say that one who merely sold and fitted eyeglasses was not practicing medicine, and the trial court gave such declaration of law in this case. But the facts which the evidence tended to prove against the defendant in this case were that he not only sold and fitted spectacles, but gave medical treatment for the eyes.

Objection was made to the admission of the evidence showing the sign at the defendant's room door at the hotel, as set out above, but the ruling was proper. It tended, connected with the other evidence, to support the charge made.

The trial court likewise properly admitted evidence of the defendant advertising as a practitioner of medicine. It is true that the Missouri statute constitutes the act of advertising as a physician as an offense within itself, yet that fact does not exclude the fact as probative of the offense of practicing. The fact that evidence having a tendency to prove the offense charged may also tend to prove some other offense not charged does not necessarily render it incompetent.

There was some claim made by the defendant that he was an ophthalmologist. If that be accepted as true, it would not serve him any purpose since that is a branch of medical science, and its practice would fall within the terms of the statute. That term seems to signify some disease or diseases of the eye, and the court can see no reason why one who prescribes medicines for such diseases would not be as guilty as by any other name. It is the act committed, and not its designation, which constitutes the offense.

The court was not impressed with the defendant's argument as to lack of proof as to his practicing. His sign, office, advertisement, treatment for a considerable period of the prosecuting witness was ample evidence.

Examination of Body for Defendant in Homicide Case Does Not Create Relation of Physician and Patient, or Privilege

The Supreme Court of Nebraska says, in Ossenkop vs. State (126 N. W. R., 72), a homicide case, that, after the homicide, the defendant employed a physician to examine the body of the deceased person and to report the result. Later the same physician was selected by the state to make a post mortem examination. He performed the service and testified at the trial to the conditions disclosed. The defendant contended that knowledge of all of the facts to which the physician testified was obtained as a result of confidential communications properly intrusted to him by the defendant. The point was that the physician's testimony was admitted in evidence in violation of the provision of the statute that no practicing

attorney, physician, surgeon, minister, etc., "shall be allowed, in giving testimony, to disclose any confidential communication, properly intrusted to him in his professional capacity, and necessary and proper to enable him to discharge the functions of his office according to the usual course of practice or discipline." As applied to physicians, the purpose of the statute is to prevent the improper disclosure of secrets or facts learned by means of the confidential relation. The relation protected is that of physician and patient. Outside of that relation the parties are on an equal footing, where the rule of the statute and the reasons of public policy on which it is founded do not follow. In this case the physician was not employed to examine or treat the defendant or any member of his family. The relation of physician and patient did not exist between them. The exhumed body contained no secrets which could be kept within the exclusive knowledge of the defendant and the physician. The means of ascertaining the condition of the body was equally within the reach of the defendant and the state. The court was entitled to know the truth. The purpose of the statute is to protect patients from objectionable disclosures; but it was never intended to shield the defendant in his position. Consequently the ruling of the trial court in admitting the physician's testimony must be approved.

Aider in Abortion Punishable as Principal

The Supreme Court of New Jersey says that it was contended in State vs. Wilson (75 Atl. R., 776) that the history of the statute of that state passed in 1872, and now in force, was such as to compel the conclusion that the legislature intended to legitimize the procuring of abortions, or at least to grant immunity to all who knowingly aided or assisted in the commission of such offense. This rather startling proposition was based on the circumstance that the original act of March 1, 1849, contains the words, "and every person with the like intent knowingly aiding and assisting such offender or offenders," which were omitted from the act of 1872. But the court suggests that the legislature may have concluded in 1872 to retain the principal offense only with its legal incidents as to who were to be held as principals in the commission of such misdemeanor. As between this intelligent and officious purpose on the part of the legislature and the imputation to it of an express intention, if not to legitimize, at least to condone one of the gravest offenses against society, the court, as a co-ordinate branch of the government, ought not for a moment to be skeptical. So it is held that if A directs a woman in an early stage of pregnancy—i. e., before the child is quick—to go to B to have a miscarriage produced, which is accomplished by B by the use of instruments, A may be indicted as a principal offender under the New Jersey statute, and, on proof of a concert of action between him and B, may be convicted under the rule that all concerned in a misdemeanor are equally guilty.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Medical Record, New York

August 6

1 *Hysteria under Psychoanalysis. G. M. Parker New York.
2 *External Urethrotomy without a Guide. C. L. Gibson, New York.
3 *Vaccines in Treatment of Bacterial Infections in Infants and Young Children. E. M. Sill, New York.
4 *A Theory as to the Origin of Leprosy. J. Atcherley, San Francisco.
5 The Genesis of Hysterical States in Childhood, and Their Relation to Fears and Obsessions. T. A. Williams, Washington, D. C.
6 *An Unusual Case of Congenital Absence of Anus and Lower End of Rectum. J. Wiener, New York.

1. **Hysteria Under Psychoanalysis.**—Parker gives a summary of the interpretation of hysteria by the psychology of Janet.

2. **External Urethrotomy Without a Guide.**—In Gibson's operation an exaggerated lithotomy position is maintained under general anesthesia. The index finger of the left hand passed into the rectum acts as a guide to the membranous urethra. An incision is made in the middle line, the knife being held perpendicularly through the tissues until it enters the well-dilated membranous urethra. A suitable probe is passed along the knife, which is still held perpendicular, the finger having been removed from the rectum. Along this probe or director the stricture is divided. A small urethrotome or bougie is passed toward and through the anterior urethra, and a filiform bougie is entered. The knife is fitted into the staff and pushed home through the stricture, after which an Otis urethrotome is passed and the operation completed by cutting the stricture through. Bladder drainage is instituted.

3. **Vaccines in Treatment of Various Bacterial Infections.**—Sill treated 49 children with local suppurations with vaccines made from the dead bacteria removed from the patients under treatment. Of these 49 children, all under 5 years of age, 30 were cases of subacute or chronic otitis media. Of these 28 children were cured, 10 improved, and one not improved. The earlier in the discharge the vaccines were used the better were the results. Pneumonia and erysipelas were cured by vaccines. The vaccines were given in doses of from 2 to 8 million bacteria. Other treatment was abstained from.

4. **Origin of Leprosy.**—According to Atcherley, leprosy is a chronic, diathetic disease, with gradual onset and irregular course, characterized by an inflammatory fibroid degeneration of the nerve tissue generally, which precedes the deposit of the lepra bacillus. This nerve degeneration is the result of defective food pabulum supplied by the blood, from the ingestion of improper food. This theory is based on the fact that the pathologic changes in leprosy bear a striking analogy to those of scurvy.

6. **Congenital Absence of Anus and Rectum.**—Wiener reports the case of a new-born infant, in whom there was absence of anus and lower part of rectum; an immediate operation, by incision of the perineum, with pushing down of the closed pouch of rectum, and suture, saved the life of the infant.

New York Medical Journal

August 6

7 Medical Allusions in Hudibras and Butler's Remains. F. H. Garrison, Washington, D. C.
8 *Study of the Leukocytes in Pulmonary Tuberculosis. M. Solis-Cohen and A. Strickler, Philadelphia.
9 Extrauterine Pregnancy from the Standpoint of Clinical Experience. J. M. Keyes, New York.
10 Laryngeal Syphilis. H. Smith, New York.
11 *Concomitant Epigastric Hernia and Gastric Ulcer. H. W. Soper, St. Louis.
12 Lane's Conception of Chronic Constipation and its Management. A. B. Cooke, Nashville, Tenn.
13 Medical Theory and Practice of the Natives of the Heart of Africa. J. Knott, Dublin, Ireland.
14 The Sound Block. E. T. Senseney, St. Louis.

8. **Leukocytes in Pulmonary Tuberculosis.**—The authors undertook this study (1) to determine whether the leukocytes in cases of pulmonary tuberculosis in a sanatorium a little above sea level present a constant picture in the various stages of the disease, and in accordance with the improvement or retrogression of the patient; (2) to see what are the average proportions of the different white blood cells in phthisis. They found:

1. The percentage of polymorphonuclear neutrophils was diminished in incipient and moderately advanced cases, being less in the former. It was also diminished in patients who were improving.

2. The percentages of the different forms of polymorphonuclear neutrophils, classified according to the number of nuclei they contained, bore no constant relation to any stage or to the progress of the disease.

3. The percentage of lymphocytes was increased in incipient and moderately advanced cases and in improving patients.

4. The percentage of large mononuclear and transitional cells, grouped together, while within normal limits, was greatest in incipient and in improving cases.

5. The percentage of eosinophils was greatest, though normal, in incipient cases.

6. In moderately advanced cases were found the lowest percentage of large mononuclear and transitional cells, grouped together, and of eosinophils, and the highest percentage of large mononuclear cells.

7. In patients whose condition was stationary occurred the highest percentage of polymorphonuclear neutrophils and the lowest per-

centage of lymphocytes, of large mononuclear cells, and of large mononuclear and transitional cells grouped together.

8. Whenever one extreme was exhibited by moderately advanced cases or by stationary cases the other extreme was furnished respectively by incipient cases or by improving patients. Far-advanced and retrograding cases respectively held a middle position, which approached the condition found in incipient and in improving cases respectively, rather than the other extreme.

9. In addition to the mononuclear basophilic cells, the blood occasionally contains polynuclear basophilic cells, easily distinguishable from other leukocytes.

11. **Concomitant Epigastric Hernia and Gastric Ulcer.**—Fourteen years ago Soper's patient was operated on for hemorrhoids and fistula. Stomach trouble developed soon after. Symptoms were distress and burning sensation accompanied by eructations of gas and acid-tasting liquids, attacks lasting from a few minutes to several hours, and were usually relieved by taking food. Occasional vomiting occurred of very acid mucus and food particles. Patient often had attacks in the early part of the night. These symptoms with remissions and exacerbations persisted. During the past year more severe attacks of pain and vomiting frequently occurred. The abdomen presented very large fat deposit. There was tenderness over the celiac axis and in the median line just below the ensiform cartilage. Gastric ulcer was diagnosticated. The pains were absent while a bland diet was followed, always recurring when coarse vegetables or meats were eaten. Operation was advised but refused.

On Nov. 13, 1909, she was seized with a severe attack following a meal of pork and sauerkraut. The epigastrium was very tender to pressure, the hernia extremely so. Despite strict ulcer cure régime the pains and vomiting persisted. On November 26 she was operated on. The hernia consisted of a thin band of the lesser omentum containing a mass of fat about the size of an almond. The stomach was explored and a slightly indurated ulcer of about the size of a silver half dollar was found in the middle of the lesser curvature in the anterior wall. The incision was closed. The patient was kept in bed for four weeks under strict bland diet. Recovery was interrupted by an attack of influenza occurring in January; since then, uneventful. There has been no recurrence of the hernia, pain, or gastric distress.

Lancet-Clinic, Cincinnati

July 30

15 Flexner's Antimeningitis Serum in Treatment of Epidemic Cerebrospinal Meningitis. H. Woolery, Bloomington, Ind.
16 Lichen Ruber Acuminatus. E. H. Shields, Cincinnati.
17 The Relation of Malaria to Life-Insurance Examinations. A. E. Cox, Helena, Ark.

Northwestern Lancet, Minneapolis

July 15

18 Epigastric Hernia. E. P. Quain, Bismarck, N. Dak.
19 A Trip Around the World. G. C. Barton, Minneapolis.
20 Tuberculosis: Its Origin and How to Prevent It. W. Hambroer, Eden Valley, Minn.

Medical Fortnightly, St. Louis

July 25

21 Pellagra. B. Allison and W. Allison, Fort Worth, Texas.

Journal Missouri State Medical Association, St. Louis

July

22 *The Relation of the Physician to the Public. T. Brown, Hamilton.
23 The Future Policies of the Medical Profession. N. P. Wood, Independence.

22. **The Physician and the Public.**—It is pointed out by Brown that the most important problem concerning the dignity and material welfare of the medical profession to-day is to convince men, women and children that we are striving to be helpful and protect them from the disasters following ignorance, superstition, incompetence and disease; that while physicians live by their work, they still sacrifice for the public service much in their lives that men hold good; that they are seeking after medical truth, and desire the fellowship of all who are working for the same great object. If this were the fixed belief of the public the advice and desires of physicians would be speedily translated into laws regulating the profession and protecting the public health. Physicians would not then plead in vain for securing the higher standard of education, morality and scientific attainments for the medical profession. Protests against the use of preservatives in food products would not be ignored by competent lawmakers. The triumph of the profession in conquering pain, sepsis, smallpox, yellow fever, malaria, diphtheria, rabies; in robbing all the infectious diseases of many of their terrors; in creating a substantial hope for many now tainted with the white plague; developing the astounding successes of modern surgery, would be acclaimed the highest and most useful achievements of mankind.

Detroit Medical Journal

July

24 Etiology of Summer Diarrheas. J. E. Davis, Detroit.
25 Treatment of Summer Diarrhea in Infants. H. M. Rich, Detroit.
26 The Thymus Gland. G. Pratt, Detroit.

Medical Herald, St. Joseph, Mo.

July

27 *Why the Indifference of the Profession to Morphinism Should be Changed. S. G. Burnett, Kansas City.
28 Fundamental Principles the Violation of Which Evolves Nervous and Mental Diseases and Limit Our Usefulness as Good Citizens. J. M. Aiken, Omaha.
29 *Neglect of the Sacroiliac Joint by the General Practitioner. E. Evans, La Crosse, Wis.
30 Calx Sulphurata. W. C. Abbott, Chicago.

27. Abstracted in THE JOURNAL, April 2, 1910, p. 1159.

29. Abstracted in THE JOURNAL, March 26, 1910, p. 1075.

American Journal of Physiology, Boston

August

31 *The Alleged Specific Anesthetic Properties of Magnesium Salts. C. C. Guthrie, St. Louis, and A. H. Ryan, Pittsburg.
32 *The Relation of the Pancreas to the Blood Diastases in the Dog. H. Otten and T. C. Galloway, Chicago.
33 *Effects of Thyroidectomy on the Resistance of Rats to Morphin Poisoning. W. H. Olds, Chicago.
34 The Mechanism of Tone in Plain Muscle. D. J. Lingle, Chicago.

31. **Specific Anesthetic Properties of Magnesium Salts.**—Meltzer and Auer have attributed specific anesthetic powers to the magnesium salts but Guthrie and Ryan explain the effects on the ground that asphyxia is produced, and in the present article they describe further experiments in support of this view. Their principal experiments were made on frogs and lead them to conclude that a very marked early effect of magnesium salts when injected subcutaneously in sufficient doses is a paralysis of the peripheral neuromuscular apparatus of voluntary muscles. An animal in such a condition is sensitive, but ordinarily does not respond to sensory stimulation because it is paralyzed. Paralysis of the more distal skeletal muscles is followed by a gradual paralysis of the respiratory muscles which results in a decrease in the pulmonary ventilation. This, in conjunction with the probable action of the salt on other processes concerned in respiration, produces a state of partial asphyxia manifested by the usual symptoms. Anesthesia may or may not occur at this stage, depending on the degree of asphyxiation. They believe, therefore, that the anesthesia that may follow the infection of magnesium sulphate solutions is due chiefly to asphyxia. Magnesium salts cannot be regarded as having marked specific anesthetic properties.

32. **Relation of the Pancreas to Blood Diastases in the Dog.**—The work of Otten and Galloway indicates that the source of the diastases in the blood is not exclusively in the pancreas. That the pancreas plays an important rôle in the production of the diastases or in their destruction, is indicated by the fact that after removal of the pancreas, there is a markedly diminished concentration of the diastases in the blood which does not keep pace with the progressive marasmus nor correspond to the state of nutrition or kind of food. This concentration approaches a constant level, neither falling below a certain point nor returning to normal. Since the concentration of the diastases in the blood and in the lymph does not seem to parallel the hyperglycemia and diabetes after pancreatectomy, the diastatic ferments, as Schlesinger has pointed out, seem to have no direct relation to sugar metabolism, and as Carlson and Luckhardt suggest, appear to be waste products. It may be, however, as Schlesinger considers, that in some mammals the main bulk of the blood diastases are pancreas diastases reabsorbed from the external

secretion. If this is so, then on removal of the pancreatic factor, the blood and lymph diastases remaining would be those of the liver and other tissues, such as the intestinal mucosa, and possibly the leukocytes. Two factors must then be considered in connection with the diastases of the blood. First, the diastases of pancreatic origin, exogenous in a sense, and of no significance in carbohydrate metabolism; and second, endo-enzymes, possibly largely from the liver, which before leaving the tissue cells may play an important rôle in the destruction of glycogen.

33. **Resistance of Rats to Morphin Poisoning.**—Hunt found that after thyroid feeding, rats and mice are less resistant to morphin poisoning than before. According to Olds, thyroidectomized rats show the same resistance to morphin poisoning as normal rats, at least, within a period of from 8 to 28 days after the operation. These facts seem to question or at least limit the Hunt test as a test for the concentration of thyroid secretion in the body fluids.

Old Dominion Journal of Medicine and Surgery, Richmond

July

35 A Half Century in Medicine. S. Baruch, New York City.
36 Hyperchlorhydria. C. A. Caton, New Bern, N. C.
37 The Heart in Lobar Pneumonia. G. Baughman, Richmond.
38 Suppuration of the Retroperitoneal Glands in Typhoid Simulating Perforation. B. M. Randolph, Washington, D. C.

Journal Indiana State Medical Society, Fort Wayne

July

39 Diagnosis and Treatment of Cerebrospinal Meningitis. W. D. Hoskins, Indianapolis.
40 Standardization of Medicinal Preparations. A. D. Thorburn, Indianapolis.
41 Sketches of the Medical History of Indiana. G. W. H. Kemper, Muncie.
42 Pellagra in Indiana. G. D. Marshall, Kokomo.

Alabama Medical Journal, Birmingham

July

43 The Value of Employment and Its Relation to Certain Neuroses and Psychoses. W. D. Partlow, Tuscaloosa.
44 *Cholecystitis Complicating Typhoid. E. M. Prince, Birmingham.
45 Orthopedic Dressings and Appliances. R. C. Evans, Birmingham.
46 Pterygium Operations. H. C. Crelly, Birmingham.
47 *Obliteration of the Craving for Narcotics.—Review of Article of Dr. Lambert. G. E. Pettey, Memphis.

44. **Cholecystitis Simulating Typhoid.**—Prince adds two cases to three previously published. In the first case the symptoms led to the diagnosis of perforation of the intestines. An incision was made in the median line and the small intestines rapidly examined, which showed no symptoms of perforation. The gall-bladder was then examined by palpation and found very much distended. Eight or ten stones were removed and some bile was discharged after the first flow of pus. In the second case a diagnosis of typhoid complicated by cholecystitis was made. The gall-bladder contained clotted bile.

47. Practically the same article was published in THE JOURNAL, May 14, 1910, p. 1593.

Journal of Biological Chemistry, Baltimore

July

48 The Hemocyanin of Limulus Polyphemus. C. L. Alsberg and E. D. Clark, Boston.
49 The Preparation of Cystin. O. Folin, Boston.
50 *Experiments Relating to the Mode of Decomposition of Tyrosin and of Related Substances in the Animal Body. H. D. Dakin, New York.
51 The Fate of Inactive Tyrosin in the Animal Body. H. D. Dakin, New York.
52 The Mode of Oxidation of Phenyl Derivatives of Fatty Acids: A Correction. H. D Dakin, New York.
53 Alkylamines as Products of the Kjeldahl Digestion. C. C. Erdmann, Waverley, Mass.
54 The Alleged Occurrence of Trimethylamin in Urine. C. C. Erdmann, Waverley, Mass.
55 The Study of Autolyses of Physicochemical Methods. R. L. Benson and H. G. Wells, Chicago.
56 A Method of Treating and Preserving Large Quantities of Urine for Inorganic Analysis. E. A. Slagle, Baltimore.
57 Phosphorus in Beef Animals. C. K. Francis and P. F. Trowbridge, Columbia, Mo.
58 Chemical Tests for Blood. P. A. Kober, W. G. Lyle, and J. T. Marshall, New York.

50. **Decomposition of Tyrosin.**—The decomposition of tyrosin has attracted considerable attention because of the fact that it is the precursor of homogentisic acid which appears in the urine in alkaptonuria. It has been claimed that homogentisic acid is an intermediary step in the normal catabolism of tyrosin and the similar compound phenylalanin. Those who maintain this view consider that alcaptonuria is simply due to a failure of the organism to oxidize the homogentisic acid formed. Dakin attempted to determine this question by administering a compound of tyrosin, and found no evidence of the formation of homogentisic acid. In further experiments with the administration of inactive tyrosin in such quantities that some of it appeared unchanged in the urine, no homogentisic acid could be detected, so that the author concludes that this substance is not a necessary step in the metabolism of tyrosin.

Southern California Practitioner, Los Angeles

July

59 Symptoms and Differential Diagnosis of Ulcer of the Stomach and Duodenum and Gall-Stones. W. A. Edwards, Los Angeles.
60 Idem. E. C. Moore, Los Angeles.
61 Ankylostomiasis. C. L. Cole, Prescott, Ariz.
62 First Aid in Eye Injuries. F. W. Miller, Los Angeles.
63 Medical Expert Testimony. E. Wing, Los Angeles.

New Orleans Medical and Surgical Journal

July

64 Disease in the Tropics. C. Wellmann, Oakland, Cal.
65 Hemorrhage from the Genitals of the Female New-Born Infant. M. A. Shlenker, New Orleans.
66 The Nose, Throat and Ear in Influenza. A. I. Weil, New Orleans.

Gulf States Journal of Medicine and Surgery and Journal of the Southern Medical Association, Mobile

July

67 *The Expenses Necessary for Sanitation in the Tropics. W. C. Gorgas, Ancon, Canal Zone.
68 Pellagra. E. M. Mason, Mobile.
69 Geographic Distribution of Uncinariasis in Alabama. G. J. Winthrop and H. P. Cole, Mobile.
70 *Uncinariasis with Post-Mortem. W. E. Ross, Jacksonville, Fla.
71 The Prophylaxis of Uncinariasis. G. Dock, St. Louis.
72 Symptomatology of Yellow Fever. C. H. Mohr, Mobile.
73 Radium Therapy. F. G. Hodgson, Atlanta.

67. **Sanitation in the Tropics.**—The object of Gorgas' paper is to show that the necessary sanitation in the tropics can be so economically done that it is within the reach of all, and that sanitary work on the Isthmus will demonstrate to the world that the white man can live and work in any part of the tropics and maintain good health, and that the settling of the tropics by the Caucasian will date from the completion of the Panama Canal.

70. **Uncinariasis.**—The post-mortem report and anatomic diagnosis in Ross' case was as follows: Anemia; emaciation; ascites; cardiac dilatation with relative mitral and tricuspid insufficiency; myocardial degeneration; edema of lungs; chronic splenitis; lymphadenitis; excoriation and ulceration of lining of jejunum and ileum, and fatty infiltration of liver.

Wisconsin Medical Journal, Milwaukee,

July

74 *Medical Education and Medicine. E. Evans, La Crosse.
75 The Medical Experiences of Benvenuto Cellini. A. W. Myers, Milwaukee.

74. Abstracted in THE JOURNAL, July 23, 1910, p. 342.

Memphis Medical Monthly

June

76 Duties and Responsibilities of the Surgeon and Some of the Things the Public has a Right to Expect of Those Assuming to do Surgery. F. D. Smythe, Memphis.
77 Rheumatism and Infection of Joints. M. G. Thompson, Hot Springs, Ark.
78 Important Requirements in Doing Abdominal Surgery. J. A. Crisler, Memphis.
79 Cancer of the Female Breast. J. T. Allen, Brownsville, Tenn.

Monthly Cyclopedia and Medical Bulletin, Philadelphia

July

80 Treatment of Leukemia by the Roentgen Ray. R. W. Wilcox, New York.
81 *Diabetes as an Infectious Disease. A. King, Portland, Me.
82 The Growth of Therapeutic Nihilism. F. S. Mason, New York.
83 Alcohol as an Active Cause of Insanity. F. Woodbury, Philadelphia.
84 Alcohol in Therapeutics. C. E. deM. Sajous, Philadelphia.

81. Abstracted in THE JOURNAL, May 28, 1910, p. 1811.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

July

85 *Study of the Functional Activity of the Kidneys by Means of Phenolsulphonephthalein. L. G. Rowntree and J. T. Geraghty, Baltimore.
86 Practical Method for the Preparation of Phenolsulphonephthalein. E. A. Slagle, Baltimore.

85. **Functional Activity of the Kidneys.**—In all, over 200 functional tests with phenolsulphonephthalein have been performed by Rowntree and Geraghty on 150 different subjects. In normal cases the drug appears in the urine in from 5 to 10 minutes, and 40 and 60 per cent. of the 6 gm. dose, the average being about 50 per cent., is recovered in the first hour. From 15 to 25 per cent. of the drug administered is recovered in the second hour, making the total recovery for two hours from 61 to 85 per cent. The authors do not consider the time of total elimination as of so much value as the amount of elimination for a definite period. The time of appearance of phthalein in the urine is from 5 to 10 minutes when the secretion of urine is free, but even in health this may be delayed when the secretion is very scanty. Following its appearance the intensity rapidly increases and reaches its maximum in from 15 to 20 minutes. At the end of from an hour to an hour and a half, as a rule, an appreciable decrease in the density becomes manifest. A tapering diminution occurs from the end of the first hour. At the end of the second hour only a definite pink is obtained on addition of an alkali. In the majority of instances excretion is practically complete at the end of two hours. The application of this test in the various types of nephritis has given the following results:

In 3 cases of acute nephritis no increased permeability of the kidney has been demonstrated, but in 2 out of the 3 cases a marked decrease in the amount of elimination has been observed. In 8 cases of parenchymatous nephritis with one exception there has been a marked decrease in the amount excreted. In one case only 10 per cent. was excreted in two hours. The greatest decrease has been noted in cases in which clinically marked secondary sclerotic changes were considered to be present. In 10 cases of chronic interstitial nephritis a low output was encountered in each instance, the decrease being usually proportionate to the degree of severity of the disease as estimated clinically. In 2 cases only a trace of the drug—less than 1 per cent.—was eliminated in the course of an hour. Both patients died of uremia within 2 months. In 60 cases with obstruction in the lower urinary tract, almost all being patients with hypertrophy of the prostate, the phthalein test has given valuable information. As a rule, the test has demonstrated the greatest impairment of function in those cases which have large residual urine and have not been leading a catheter life. In many instances in which the output of the drug was low when the patient was first seen, adequate regimen has resulted in a decided improvement of the kidney function as indicated by the test. When the time of appearance is delayed beyond 25 minutes and the output of the drug is below 20 per cent. for the first hour, operation is postponed regardless of the patient's clinical condition. If, under routine treatment, the output remains low but constant, the renal function is probably in a stable condition and the operation may be undertaken, care being taken to select an anesthetic which will not further depress the renal function. In one instance, a successful operation was performed with an output of 8 per cent. for the first hour, but this output had remained constant for a period of 5 weeks. The low output here was ascribed to chronic interstitial changes in the kidney, and nitrous oxid was accordingly employed. Repeated determinations should be made, and except when unavoidable, operations should not be performed when the tests indicate a decreasing function. Again, when only a trace of dye is excreted operation should not be attempted, as grave renal changes exist.

The test has made it possible, the authors declare, to select a time for operation when the kidneys have regained their full functional power and stability. In no case in which the functional test indicated an efficient or stable renal function prior to operation, has any evidence of renal inefficiency become apparent subsequently. The authors conclude that phenolsulphonephthalein itself is better adapted for use as a functional test than any other drug previously employed for the same purpose on account of its early appearance in the urine and the rapidity and completeness of elimination by the kidney.

Ophthalmic Record, Chicago

July

87 Importance of Prompt *X*-Ray Examination in Penetrating Wounds of the Eyeball in which the Foreign Body can Neither be Seen nor Accounted For. R. L. Randolph, Baltimore.
88 Transient Complete Opacity of the Cornea Following the Use of Obstetric Forceps. J. Green, St. Louis.
89 Alternating Illumination. N. M. Black, Milwaukee.
90 A Traumatic Cataract Operation. W. S. Windle, Oskaloose, Ia.
91 Device for Pneumomassage of the Eye. F. B. Eaton, Portland, Ore.
92 *Conjunctival Flaps in Ophthalmic Surgery. W. G. M. Byers, Montreal.
93 The Joint Removal of Capsule and Lens. R. Sattler, Cincinnati.
94 Colored Toric Glass for Use in Examining Cases of Ocular Paralysis. W. G. M. Byers, Montreal.
95 Criticism of the Smith Indian Cataract Operation of Extraction in the Capsule. P. P. Kilkelly, Bombay, India.
96 A Splinter of Wood in the Left Orbit for Fifteen Years. H. E. Randall, Flint, Mich.
97 An Eye-Shade for the Iris Diaphragm Chimney, Combined with Device for Holding a Retinoscope. J. N. Rhoads, Philadelphia.

92. Published in the *Montreal Medical Journal*, July, 1910.

Journal of Ophthalmology and Oto-Laryngology, Chicago

July

98 Etiology of Cataract. L. Stricker, Cincinnati.
99 Tone Perception. W. S. Bryant, New York.

Kansas City Medical Index-Lancet

July

100 Stigmata of Nervous Diseases. J. Punton, Kansas City.
102 The Tuberculin Blister Reaction. H. deC. Woodcock, Leeds, England.
103 Nursing for the Neurologist, the Psychic Factor: What to Avoid, the Principles that Guide. T. A. Williams, Washington, D. C.

Atlanta Journal-Record of Medicine

July

104 Hydrotherapy. L. Amster, Atlanta, Ga.
105 Thoughts on Tuberculosis. G. Brown, Atlanta, Ga.
106 Is There Too Much Surgery? W. W. Mangum, Rome, Ga.
107 Aphasia. T. A. Williams, Washington, D. C.
108 Tics in Children, and Their Treatment. H. C. Whelchel, Douglas, Ga.
109 An Unusual Instance of Poisoning with Argyrol Injected into the Deep Urethra and Bladder. E. G. Ballenger, Atlanta, Ga.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

Lancet, London

July 23

1 An Exercise on Heart Disease. N. Moore.
2 *Epilepsy. W. A. Turner.
3 Ferro-Silicon: The Poisonous Gases Liable to be Evolved Therefrom. H. W. Hake.
4 The Notification of Consumption. R. Farquharson.
5 *Dermato-Myositis with Recovery. N. C. Gwynn and W. Gordon.
6 Examination of the Blood Serum of Idiots by the Wassermann Reaction. H. R. Dean.
7 The Medical Proposals of the Minority Report: An Appeal to the Medical Profession. H. Beckett-Overy, S. Hastings and A. Freeman.
8 Tuberculosis in its Relation to the Generative Functions. J. T. R. Davison.
9 Suppurative Perichondritis of the Larynx in the Course of Acute Pneumonia. Recovery. J. Collier and H. S. Barwell.
10 *The Treatment of Rheumatism by Bee Stings. F. H. Maberly.

2. **Epilepsy.**—There is no single specific remedy in the treatment of epilepsy, says Turner, although the alkaline salts of bromin come nearest to this definition. But the influence of the bromids on epileptic convulsions is variable and uncertain. In the first place, bromid medication may arrest the seizures immediately, or within a short period of their administration, temporarily or permanently. Second, the bromids may induce a lessening in the severity and frequency of the seizures. Third, the bromids may exert no influence at all on the disease, or may even augment the frequency or severity of the seizures. Under the influence of the salts

of bromin a considerable number of cases of epilepsy are temporarily "cured" or materially improved. Bromid treatment should be commenced at the earliest possible time after the onset of the fits. If benefit does not follow a daily dose of from 45 to 75 grains of one or a combination of the bromid salts, some other remedy or method of treatment should be sought for and applied. Turner holds that the large doses sometimes prescribed—from 100 to 150 grains daily—although no doubt suppressing the seizures for a time, induce other and more serious phenomena.

Of the combinations of the bromids with other remedies Turner has found Gelineau's formula the most useful and satisfactory. It is prescribed in the form of dragées, containing 1 gram of potassium bromid, ⅓ milligram of picrotoxin, and ½ milligram of the arseniate of antimony. He has used the dragées in all forms of epilepsy with considerable success. The method of prescribing them is simple: One dragée to be taken either during or immediately after a meal thrice daily for a week, an additional dragée being added weekly until the patient is taking 4, 5 or 6 per diem. Turner has found 6 dragées a day usually sufficient to hold the fits in check, although according to Gelineau as many as 10 or 12 may be taken daily. In patients with confirmed epilepsy with mental deterioration the use of bromids is of relatively little value. Their continued administration in these cases does, however, produce a diminution in the number, and perhaps in the severity, of the seizures.

5. **Dermato-Myositis.**—The case reported by Gwynn and Gordon seems a fairly typical one, but presents no new features and affords no fresh clue to the etiology. The clinical picture suggested a toxemia arising from some infection of the alimentary canal, and efforts were therefore directed to disinfection of the mouth, throat, stomach and bowels.

8. **Tuberculosis and the Generative Functions.**—Davison points out that Koch's bacillus can only successfully invade organisms which lack proper defense; we know that the lines of natural defense are weakened when the organism loses its vigor; we know that sexual functions exercised in immediate degree, or exercised by organisms in a state of degeneration, spend inordinately the strength of the individual. Finally, we know that modern hygienic measures snatch from a sure death many children who afterward pass on to the reproductive epochs of life with frail organisms. This simultaneous occurrence of the great sexual activity, or sexual activity exercised under disadvantageous conditions (maturity in both sexes and advanced maturity in the male), and great mortality from tuberculosis cannot, therefore, be a mere coincidence—the first must be the cause of the second.

10. **Treatment of Rheumatism by Bee-Stings.**—Maberly reports several cases of chronic, apparently intractable cases of rheumatism which were cured to all intents and purposes by being exposed to bee-stings at regular intervals. One, a man about 35 years of age, had been laid up three times with rheumatic fever for 6 or 7 months each time, and found his joints increasingly stiff with each attack. In his case the bee stings did marvels. His feet had always been stiff from the first attack, but now he could walk anywhere and "did" about 20 miles every Sunday. His ankle movements were perfect and he stood on his toes quite easily. He says that he always ate and drank what he liked, and whenever he could catch a bee in his garden he did so and put it on. Maberly saw a number of other cases, some of old-standing chronic rheumatism, both in elderly and younger subjects, and all were doing well, while in nearly all the usual remedies had been tried without any good results.

British Medical Journal, London

July 23

11 Duodenal Ulcer. G. Rankin.
12 *Tubercle Bacilli in the Feces in Tuberculosis. R. W. Philip and A. E. Porter.
13 *Experimental Evidence for the Theory of the Neurogenic Coordination of the Heart Pulse. H. Kronecker.
14 *Ocular Condition of Mongolian Imbeciles. F. H. Pearce, R. Rankine and A. W. Ormond.
15 Chronic Toxemia at Vittel. H. J. Johnston-Lavis.
16 Scarlatina Maligna. A. Gregory.
17 *Recurrent Monstriparity. E. N. Burnett.
18 *Turpentine Enemata in the Treatment of Enteric Fever. W. J. J. Arnold.

12. **Tubercle Bacilli in the Feces.**—Altogether 109 different specimens were examined by Philip and Porter. Of these, 99 were from patients suffering from pulmonary tuberculosis, in different stages of the disease. None of the patients had intestinal tuberculosis. The other specimens were from one case of tuberculous peritonitis and from patients without a suspicion of tuberculous infection. Of the 109 patients, only 34 had sputum in which tubercle bacilli had been discovered; 42 had sputum in which no bacilli were found, and 24 had no sputum whatever. Of the 100 tuberculous patients examined, 79 were found to yield tubercle bacilli, and only 21 were negative. Of the 9 specimens from presumably normal subjects none yielded tubercle bacilli. Of the tuberculous patients all those with bacilli in the expectoration, with one exception, presented tubercle bacilli in the feces. Of the 42 patients in whom bacillary examination of the sputum was negative, 29 gave tubercle bacilli in the feces. Of the 24 without sputum, 17 showed bacilli in the stools.

Philip and Porter claim that the occurrence of the tubercle bacilli in the feces is independent of the presence of an intestinal lesion. Indeed, their presence has little reference to abdominal tuberculosis. They were actually absent from the only case of tuberculous peritonitis which was examined. The remarkable frequency of their occurrence in relation to pulmonary tuberculosis, not only in cases in which tubercle bacilli were determinable in the sputum, but also in cases in which either bacilli were absent or there was no sputum whatever, would seem to afford an important addition to their means of diagnosis in doubtful cases of pulmonary tuberculosis.

13. **Neurogenic Coordination of Heart Impulse.**—Kronecker's observations show that the coordination of the different parts of the heart is brought about through a nervous channel.

14. **Mongolian Imbeciles.**—The authors examined 28 patients corresponding to 56 eyes. Nineteen patients had lens changes (67.8 per cent.); 18 had typical lens changes (64.3 per cent.); 35 eyes had cataract changes of some sort (62.5 per cent.); 33 eyes had typical changes in the lens (58.9 per cent.); 10 patients had some inflammation of the lids (35.7 per cent.); 7 patients had squint; 4 had chorioidal changes, and 2 had nystagmus. The age of the youngest patient was 5 years and the oldest 43. The youngest showing cataract was 9 years, and the oldest patient had a well-developed typical cataract of the kind described. Fourteen patients had the interpalpebral fissure directed upward and outward.

17. **Recurrent Monstriparity.**—The patient, aged 35, a strong, healthy woman, gave birth to a full time female child having a large cephalocele presenting from the vertex. The first pregnancy went to term, when a normal male child was born. The second pregnancy ended in abortion at the end of the third month; the fetus was anencephalic. The third pregnancy ended in abortion at the fifth month; the fetus (male) was anencephalic. The fourth pregnancy concluded at term, and is the subject of the present report.

18. **Treatment of Typhoid Fever.**—Arnold says that none of the various methods of treatment have hitherto been successful in definitely controlling the course or limiting the duration of typhoid fever. A measure employed at the Civil Hospital, St. Helena, during the past 4 or 5 years, has resulted in a distinct shortening of the average duration of illness, and in a remarkable amelioration of all the symptoms. This particular measure consists in the administration by the bowel of turpentine and olive oil from the first day of treatment, and its regular use at stated intervals until the temperature has been normal for at least ten days. When the case first comes under observation an enema of turpentine ℥j and olive oil Oj is given by a funnel and tube. The foot of the bed being well raised, the emulsion is allowed to find its way slowly up the bowel. On the next day, or the day after, the same quantities are repeated. A preliminary thorough cleansing of the bowel by a dose, or preferably small divided doses, of calomel, followed by castor oil, prepares the ground for the action of the turpentine.

Clinical Journal, London

July 20

19 Vaccine Therapy. H. White, G. Ball, G. T. Westers, Dr. Horder and B. Harris.

Annals of Tropical Medicine and Parasitology, Liverpool

June

20 Sanitary Conditions and Diseases Prevailing in Manãos, North Brazil, 1905-1909. H. W. Thomas.
21 Pathologic Report of Esophagostomiasis in Man. H. W. Thomas.
22 Zoölogic Study of *Esophagostome de Thomas*. A. Railliet and A. Henry.
23 "Mossy" Foot of the Amazon Region, an Infective Verrucotic Condition Affecting the Skin of the Upper and Lower Limbs. H. W. Thomas.
24 Guarana. P. H. Marsden.
25 Chemical Constituents of Guarana. M. Nierenstein.
26 Yellow Fever. H. W. Thomas.
27 Mosquitoes of the Amazon Region. R. Newstead and H. W. Thomas.

Archives Générales de Chirurgie, Paris

May, IV, No. 5, pp. 441-550

28 Arteriovenous Anastomosis. C. Monod and J. Vanvert. Commenced in No. 4.
29 Tumor of Accessory Parotid Gland. M. Florence.
30 Pathologic Anatomy and Treatment of Suppuration in the Prostate Due to the Gonococcus. Faxton Gardner (New York).
31 Efficacy of Continuous Extension in a Case of Sciatica. D. G. Zezas.

June, No. 6, pp. 551-660

32 Double Luxation of the Astragalus. Trénel, Worms and A. Boeckel.
33 Experimental End-to-End Suture of Vessels. (L'anastomose circulaire des vaisseaux par suture ou par appareils prothétiques.) C. Fleig.
34 Metal Brace for Fracture of Long Bones. (Procédé d'ostéosynthèse pour les fractures des diaphyses par brassière métallique.) E. Juvara.
35 Shortening and Fastening the Cecum Supplementary to Appendicectomy. (Cæcoplicature et cæcopexie complémentaires de l'appendicectomie.) P. Mauclaire.

Bulletin de l'Académie de Médecine, Paris

July 5, LXXIV, No. 26, pp. 1-47

36 Serotherapy of Acute Articular Rheumatism and Wright Vaccine Treatment of Rheumatism. G. Rosenthal and F. Widal.
37 *Method for Collecting Vital Statistics. (Vérification des décès et déclaration des maladies qui en ont été la cause.) M. Marquez.
38 *Granular Cirrhosis of the Liver. (Etiologie et prophylaxie de la cirrhose granulée du foie, dite encore cirrhose atrophique, cirrhose alcoolique, œnolique, de Lænnec, etc.) M. Lancereaux.
39 *Suprahepatic Ballottement Sign of Echinococcus Cyst in the Liver. (Le ballottement sus-hépatique, signe nouveau des kystes hydatiques de la convexité du foie.) A. Chauffard.
40 Pathologic Anatomy of Pachypleuritis. M. Letulle.

July 12, No. 27, pp. 48-80

41 *Incomplete or Anomalous Form of Coxalgia. E. Kirmisson.
42 *Preservation of Vaccine by Refrigeration. (Pulpes vaccinales et basses températures.) Kelsch.

37. **Improved Death Certificates.**—The mayor of Hyères in Southern France is a physician, and a double perforated certificate blank is in use there, to obviate the necessity for informing the friends of the cause of the death. Both blanks are filled out at the same time. The first is to be given to the family to be handed to the authorities as the death notice, and records the name, sex, age, residence, profession, date and physician's signature. The twin certificate records sex, age, married or single, profession, date of death, cause of death and the signature of the physician. The patient's name is not given in this certificate which the physician seals and mails to the mayor. When it is received at the city hall it is deposited in a special locked urn and this urn is opened and the contents officially examined and recorded only once or twice a year. There is thus nothing to conflict with the obligation of professional secrecy, the cause of death not accompanying the name of the individual, but all other details necessary for vital statistics are duly recorded. This system has been in use for nearly two years at Hyères and the workings have been exceptionally satisfactory.

38. **Cause of Gin Liver.**—Lancereaux has been conducting experimental research for years, the conclusions of which are that cirrhosis of the liver of this type is the result of the action of substances used in wine, beer, etc., for their preservation, especially potassium bisulphate. He was able to produce the typical lesions of gin liver by feeding animals with this salt. The other salts of potassium did not seem to cause disturbances of this kind.

39. See Paris Letter, July 30, page 413.

41. **Incomplete Form of Coxalgia.**—Kirmisson has encountered 5 cases of a hip joint disease which is distinguished by lack of severe local symptoms and yet it entails extensive destruction of the joint. A little pain and slight limping were the maximum of the disturbance. In such a case described in detail, a boy of 11 showed no signs of vicious attitude and walking was not painful, but the joint seemed to be unusually relaxed, the condition resembling congenital dislocation. After the trouble had lasted about a year without any aggravation of symptoms, radioscopy revealed extreme atrophy of the head of the femur; it had almost disappeared, explaining the special form of the lameness. At each step the head slipped up on the ilium. Nothing except radioscopy would have suggested such extensive lesions. In another case the youth complained of his knee and limped a little; nine months later atrophy of the muscles on the same side was noticed. The limb was in slight abduction with outward rotation but no pain except when the hip joint was completely flexed. The general condition was good but radioscopy revealed manifest lesions in the head of the femur. In none of the 5 cases reported was there any difference in the length of the legs. In 1 case the symptoms were banished by extension but after an intercurrent measles the hip trouble returned and its tuberculous nature became manifest. As this form of hip joint disease develops so insidiously, it is liable to be confounded with coxa vara.

42. See Paris Letter, July 30, page 413.

Presse Médicale, Paris

July 9, XVIII, No. 55, pp. 521-536

43 *Resection of the Rectum with Continent Sphincter. A. Desjardins.
44 Sporotrichosis in Man from Laboratory Inoculation. De Beurmann and L. Ramond.
45 *Pleurisy and Hydrothorax with Heart Disease. R. Cruchet and R. Lautier.
46 Electricity in the Service of Medicine. (Les bases physiologiques de l'électricité médicale; électrothérapie dans ses rapports avec la rééducation et la psychothérapie.) A. Zimmern and P. Cottenot.
47 Tridigital Exploration of the Head of the Femur. M. J. Gourdon.
48 *Kaolin Technic for Functional Stomach Tests. (De la mesure du volume total du contenu gastrique et de l'étude de la sécrétion moyenne de l'estomac.) L. Meunier.

July 13, No. 56, pp. 537-544

49 *Syphilitic Pleurisy. H. Roger.
50 Ethyl Chlorid in General Anesthesia. (De l'anesthésie générale de courte durée prolongée; nouveau dispositif instrumental.) L. Camus.

July 16, No. 57, pp. 545-552

51 The Primary Axillary Triangle in Hepatization of the Lung. E. Weill and G. Mouriquand.
52 Modified Catheterization of the Ureters. (Nouveau procédé de cathétérisme urétéral.) M. Gudin.

43. **Resection of the Rectum with Continent Sphincter.**—Desjardins introduces into the rectum a hard-rubber cylinder with cross-bar handle; the diameter is nearly that of the rectum and a deep groove is cut just below the rounding tip. Through an abdominal incision the rectum above the lesion is tied to the cylinder, the thread drawn into the groove. The abdomen is then sutured and the rectum, fastened to the cylinder, is then drawn out through the anus. The lesion can thus be resected outside the body. The protruding stump of the bowel is sutured to the anus just above the sphincter. The results have been complete recovery in two cases of cancer removed by this technic. In another case the cylinder was a straight one and the operation failed; since then he uses a curved cylinder that fits perfectly into the rectum. One of the patients operated on rides horseback now without any disturbances.

45. **Pleurisy and Hydrothorax with Heart Disease.**—The practical conclusions of this study of effusion in the pleura in the course of heart disease emphasize the importance of relieving the heart by prompt evacuation of the fluid as any effusion in the pleura imposes extra work on the heart.

48. **Kaolin Technic for Functional Tests of the Stomach.**—Meunier found that the various tests in vogue for estimating the functioning and functional capacity of the stomach all failed to yield reliable findings on account of the fact that the contents of the stomach do not blend to form a homogeneous mass but lie in layers. A portion of the stomach content taken for examination will give entirely different findings according to the spot from which it was taken. All this can be remedied, he states, by having the patient ingest

a suspension of kaolin or fuller's earth, 10 gm. in 100 c.c. of water, before the stomach contents are to be withdrawn. This forms a suspension with the stomach contents, and he aids in blending it by blowing in a little air with the sound just before withdrawing the stomach contents after the test meal. The stomach content thus withdrawn forms a milky suspension entirely homogeneous and with this the various tests are applied as under other conditions. As the amount of kaolin in each c.c. is known, evaporating a given amount of stomach content and calcining it leaves an ash which is practically nothing but kaolin, and from the amount of this in a given amount of stomach content it is easy to deduce the total volume of the latter.

49. **Syphilitic Pleurisy.**—Roger reports two cases of apparently typical pleurisy but the positive Wassermann reaction, the absence of albumin and of tubercle bacilli in the effusion, the negative results of inoculation of guinea-pigs and the rapid recovery under mercurial treatment, all confirmed the assumption of a syphilitic process in the pleura. In four other patients with tuberculous pleurisy but scanty pulmonary manifestations, the reaction for albumin in the sputum was always positive. He refers to two other recently published cases of tertiary syphilitic pleurisy; the Wassermann reaction was positive in both effusion and blood serum, and recovery was soon complete under mercurial treatment.

Semaine Médicale, Paris

July 20, XXX, No. 29, pp. 337-348

53 *Clinical Forms of Amyotrophic Rheumatism. M. Klippel and M. P. Weil.
54 *Distant Signs of Abdominal Cancers. F. Lejars.

53. **Clinical Forms of Rheumatism with Amyotrophy.**—Klippel and Weil call attention to the form of polyarthritis with ankylosis and such a degree of muscular atrophy that the latter may be said to dominate the clinical picture. In some cases only one joint is affected and the atrophy is restricted to this limb. In Deroche's case the ankylosis of the shoulder, elbow and hand was followed in less than 5 weeks by atrophy of the entire arm. They are inclined to ascribe the atrophy and also the joint trouble to some change in the axis-cylinder, especially as painful spasms, edema and fibrillary twitching in the muscle were frequent in their two cases on a gonorrheal basis. They review the literature on the subject in detail.

54. **Remote Signs of Abdominal Cancer.**—Lejars discusses the enlargement of the supraclavicular glands and the patch of induration in the pouch of Douglas and the tough shrivelling of the umbilicus as instructive signs of internal cancer. The ovary is a frequent location for transplantation metastasis of gastric or intestinal carcinoma, and the same effect of gravity is seen in the pelvic deposit in the pouch of Douglas. It is equally important to examine the umbilicus, induration and shrivelling at this point sometimes being the first clue to cancer within. In one such case, a robust man of 58 had complained of a little discomfort in the umbilicus and occasional slight pain. Otherwise he was in apparent perfect health, free from any gastro-intestinal disturbances. The umbilicus looked like orange skin, and there was induration but none beyond or below. Lejars diagnosed a deep latent cancer and this was confirmed by the death of the patient from cachexia in less than a year. In another case the umbilicus was apparently normal except that one side had retracted and palpation showed a small nodule below. There was suspicion of gastric cancer in this case and this finding in the umbilicus hastened operative treatment. It is possible that the secondary umbilicus cancer may be taken for a hernia or an umbilical hernia may develop a cancerous nodule.

Berliner klinische Wochenschrift

July 4, XLVII, No. 27, pp. 1261-1308

55 *Treatment of Syphilis with Ehrlich's "606." (Behandlung der Syphilis mit Dioxydiamido-arsenobenzol.) W. Wechselmann.
56 *Diagnosis of Syphilis and Its Activity by Test Mercurial Injections. (Erkennung der Syphilis und ihrer Aktivität durch probatorische Quecksilberinjektionen.) F. Glaser.
57 Albumin Bodies and Fat Deposits in the Liver. (Eiweisskörper und Leberverfettung.) G. Rosenfeld.
58 *Prophylaxis of Caisson Disease. (Versuche über die Prophylaxe der Pressluftkrankheit.) A. Bornstein.
59 Changes in Organs after Extensive Saline Infusion. (Welche Organveränderungen bewirken grosse subcutane Kochsalzinfusionen?) S. Wideröe.
60 Mechanical Vibratory Treatment of Functional Vocal Disturbances. (Eine neue Methode zur Behandlung der funktionellen Stimmstörungen, nebst Bemerkungen zu ihrer Pathologie und Therapie.) T. S. Flatau.
61 Proportions of Diastase in Human Blood and its Connection with Diabetes Mellitus. O. J. Wynhausen.

July 11, No. 28, pp. 1309-1352

62 *Chronic Febrile Ulcerative Procto-Sigmoiditis. H. Strauss.
63 Diphtheria Antitoxin. (Resultate der Serumtherapie bei 1231 tracheotomierten und intubierten Diphtheriepatienten, verglichen mit denen bei 605 Fällen vor dem Serum.) H. Timmer.
64 Serodiagnosis of Echinococcus Cyst. (Zur Kasuistik der Erkennung des multilocularen Echinococcus vermittelst der biologischen Komplementablenkungsreaktion.) A. N. Dobrotin.
65 Idem. (Serodiagnostik der Echinokokkenerkrankung.) K. Meyer.
66 *Endobronchial Therapy. A. Ephraim. Commenced in No. 27.
67 Nitrites, etc., as Causal Factor in Cholera. (Nitrit, salpetrige Säure und Stickoxyd als Choleragifte.) R. Emmerich.
68 Arabinosuria. (Ueber inaktive und rechtsdrehende Arabinoseausscheidung im Harn.) L. Schuler.
69 Lipoidemia. M. Adler.
70 Influence of Modern Lights on the Eye. (Einfluss der modernen Beleuchtungsquellen auf das Auge.) Helbron.

55. **Treatment of Syphilis with Ehrlich's "606."**—The main points in Wechselmann's communication were mentioned in the Berlin Letters of July 23, page 326, and August 13, page 609.

56. **Test Injection of Mercury in Syphilis.**—Glaser reasoned that with a positive Wassermann reaction but no apparent manifestations of syphilis, an injection of mercury might destroy enough of the spirochetes to release endotoxins and cause fever from their absorption. He has consequently applied this test injection as a diagnostic measure and found the febrile reaction a delicate and reliable index. He gives a few typical curves to show the abrupt rise in temperature liable to follow an intragluteal injection of 0.05 or 0.1 gm. of salicylate of mercury. In some cases the febrile reaction was not observed until after the second, third or fourth injection; the fever generally lasted for one to three days. He regards it as a sign that further antisyphilitic treatment is needed, but he does not venture to draw any therapeutic conclusions from the absence of a febrile reaction in cases of latent syphilis giving a positive Wassermann reaction.

58. **Prophylaxis of Caisson Disease.**—Bornstein presents evidence to prove that retention of nitrogen is the main cause of the disturbances from caisson work, and that muscular exercise on coming out from the caisson works off this excess of nitrogen more rapidly than any other measure. Even climbing a long flight of steps on coming out is sufficient to throw off the surplus nitrogen. Since the workmen have had to climb nearly 75 feet to the surface in the work on the Elbe tunnel at Hamburg the proportion of workmen affected has dropped from over 3 to less than 0.4 per cent.

62. **Chronic, Febrile, Ulcerative Proctosigmoiditis.**—Strauss gives the autopsy findings in a case in which his diagnosis during life was confirmed post mortem. The process did not extend beyond the upper part of the sigmoid flexure and the pathologic changes were more pronounced downward. He describes further two more cases in which this localized inflammation induced fever but no tumefaction could be palpated and the sigmoid region was not tender. This lack of swelling and tenderness he has noticed in other cases of ulcerative processes in the sigmoid flexure, but the anus is liable to gape. The autopsy findings demonstrate that medical and local measures have little prospect of success in case of such extensive lesions and that operative treatment is necessary. Hermann reported in 1904 24 cured and 11 improved of 50 patients under operative treatment. Strauss advises an artificial anus made in the cecum or the lowest part of the ileum, to leave the inflamed section in peace. Operative treatment is indicated when the general health is suffering and months of local and internal measures have given no permanent relief. Medical measures alone will generally answer the purpose, as he shows by a case in which a young woman had an ulcerative inflammation for 17 cm. above the anus, but was entirely cured by local and general treatment kept up for several months.

66. **Endobronchial Therapy.**—Ephraim has an apparatus for spraying the bronchial ramifications, the flexible instrument being introduced down to the bifurcation, and reports its application in 68 cases of bronchial asthma, the ages ranging from 8 to 71. Only 53 were given the treatment systematically and of these 35 seem to be permanently cured, 6 improved, 5 transiently improved and in 7 no effect was manifest. He uses for the spray a solution of an anesthetic with epinephrin (novocain-suprarenin).

Deutsche medizinische Wochenschrift, Berlin

July 14, XXXVI, No. 28, pp. 1305-1352

71 Antiformin Test for Scanty Tubercle Bacilli in Scraps of Tissue, etc. (Anwendung des Uhlenhutschen Verfahrens zum Nachweis spärlicher Tuberkelbazillen in Gewebsstücken.) H. F. Hoffmann.
72 *Traumatic Tuberculosis. A. Kappis.
73 *The Superficial Lymph Glands of the Thorax in Pulmonary Tuberculosis. (Die subkutanen Lymphdrüsen des Thorax bei Lungentuberkulose.) E. v. Zebrowski.
74 Traumatic Incomplete Rupture of Sound Heart and Mitral Valve. (Traumatische inkomplette Herzruptur und Mitralsegelzerreissung.) W. Berblinger.
75 *Diagnosis of Duodenal Ulcers. (Zur Diagnose der Duodenalgeschwüre.) A. O. Günzburg.
76 *Granulomatous or Condylomatous Proliferation with Gonorrhea. V. Klingmüller.
77 *Torsion of the Omentum. (Netztorsion.) P. Steiner.
78 *Leukoplakia of the Bladder. (Zur Leukoplakie der Harnblase.) P. A. Herzen.
79 The Causal Agent of Trachoma. (Natur des Trachomerregers.) K. Lindner.
80 Mite as Endoparasite. (Eine Milbenart von Glyciphagus als Endoparasit.) T. Tsunoda.

72. **Traumatic Tuberculosis.**—Kappis relates the history of a roofer, about 25 years old, previously strong and apparently healthy, who fell from a height of three stories, a compound fracture of the right thigh resulting. An acute osteomyelitic process developed at the point of the fracture, of tuberculous nature, evidently traceable to an old apical tuberculous process. Amputation became necessary and the much debilitated patient succumbed to the loss of blood although this was only 200 c.c. If the extent of the process had been suspected before the operation the Momburg belt constriction would have been applied. Kappis adds that the family made no claim for damages from the industrial accident but such a claim would certainly have been allowed by the courts in this case.

73. **Enlarged Superficial Lymph Glands with Pulmonary Tuberculosis.**—Zebrowski found enlarged glands on the side of the chest in 186 out of 929 patients with unmistakable tuberculous lesions in the lungs or pleura, that is, in 20 per cent. He also found the enlarged glands in 2.58 per cent. of 1,629 patients without manifest signs of tuberculosis. In 14 in this latter group with enlarged glands the skin and conjunctiva tuberculin tests elicited a positive response, and these tests were not applied in the other 28 patients in this group. Nothing pathologic could be discovered by casual examination in 11 in this group. The enlarged glands were found along the middle axillary line or a little inward from this, along the long thoracic artery. In 12 of the 228 patients presenting these enlarged glands, they could be distinctly traced along the line of the pulsating vessel when looked at from the side, generally at about the fourth interspace and mostly on the right side. In one case the discovery of the enlarged glands first suggested possible tuberculosis of the lungs, and the glands subsided to normal size as the tuberculous process healed under treatment. He discusses the anatomic conditions responsible for involvement of these glands in the pathologic process beyond.

75. **Diagnosis of Duodenal Ulcers.**—Günzburg remarks that the pathologic anatomists still are discovering many duodenal ulcers that had escaped the clinician. In 8 of his total of 18 cases of duodenal ulcer autopsy confirmed his diagnosis; it was based on the pains coming on two or three hours after the meal and relieved by eating, also pains sometimes occurring at 1 or 2 a. m. These attacks of pain may recur through days and months; they are difficult to influence and appear and disappear with periodical regularity. With a history of this kind, duodenal ulcer is almost certain, especially if there is more or less blood in the stools or delay in evacuating a Leube test meal beyond seven hours. The enlargement of the duodenum is also liable to induce a characteristic tympanitic percussion sound over the quadrate lobe of the liver. This tympanitic zone in the region of the quadrate lobe is caused by the dilated duodenum passing behind this lobe. When the duodenum returns to normal size, as after gastroenterostomy, this resonance is no longer perceived. It appears only when the liver is in its normal place, and when the dulness over the left lobe of the liver can be distinguished from the cardiac dulness. The colon must be emptied before percussing.

76. **Anal or Vulvar Condyloma with Gonorrhea.**—Klingmüller has encountered 8 cases of condylomatous proliferation around the anus or on the perineum of women with a gonorrheal process in the rectum and a case of a granulomatous growth on the prepuce of a male. He ascribes these proliferations to the gonococcus.

77. **Torsion of the Omentum.**—Steiner reports a case of ileus due to torsion of the omentum and compares the clinical picture with 66 similar cases on record. A coexisting hernia is mentioned in nearly every case; this leads to adhesions and the omentum becomes fastened and nodules are liable to develop in it, all favoring torsion. It was readily relieved by laparotomy and resection of the whole of the twisted part of the omentum in his case.

78. **Leukoplakia of the Bladder.**—Herzen reports a case in which he resected a patch of leukoplakia in the bladder, with the involved mucosa and submucosa, after high incision. The patch was 8 or 10 cm. long by 3 to 5 cm. wide; the bleeding surface left was cauterized with the Paquelin and the bladder wall drawn up over it with catgut sutures. The symptoms previously had been dysuria and bacteriuria but no tubercle bacilli had been found. The patient, a man of 24, has been in good health since the operation.

Medizinische Klinik, Berlin

July 17, VI, No. 29, pp. 1123-1162

81 *Diagnosis of Pancreas Disease. (Diagnose der Pankreaserkrankungen.) K. Glaessner.
82 *Diagnosis of Syphilitic Disease of Upper Air Passages. J. Zange.
83 *Psychopathology of the Tuberculous. (Psychopathologie der Tuberkulose.) G. Liebe.
84 Primary Hemorrhagic Glaucoma. W. Feilchenfeld.
85 Case of Aneurism of the Aorta from Articular Rheumatism. J. Ruppert.
86 Is it Necessary to Protect the Eyes against the Ultraviolet Rays? (Ist Schutz der Augen vor ultravioletten Strahlen notwendig?) F. Schanz and Stockhausen.
87 Idem. (Schlusswort.) Best.
88 *The Meiostagmin Reaction with Cancer. (Klinische Erfahrungen mit der Meiostagminreaktion bei bösartigen Geschwülsten.) P. De Agostini.
89 Physiologic Action of Radioactive Saline Springs. F. Krieg.

81. **Diagnosis of Pancreas Disease.**—Glaessner describes the various tests to aid in the diagnosis of pancreatic affections and advises their application. The main point, however, he remarks, is to have the possibility of pancreas trouble occur to one's mind.

82. **Diagnosis of Syphilitic Disturbances in the Upper Air Passages.**—Zange regards the Wassermann reaction as a powerful aid in differentiating suspicious lesions; negative Wassermann findings should impose caution. The lesions themselves are not characteristic, only their mode of development and history. Spirochetes are comparatively rare in tertiary lesions but inoculation of animals with scraps of suspicious tissue will at least exclude tuberculosis. He relates 11 case histories in which the Wassermann reaction gave the clue and led to effectual treatment. In a case with negative Wassermann reaction the findings seemed to be characteristic for gumma or a primary sore on the tonsils but the lesions subsided spontaneously in the course of a few weeks; the retrospective diagnosis was Vincent's angina, and mercurial treatment would have been an error. In another case the bones of the nose were being eaten away and everything except the negative Wassermann reaction indicated syphilis but an operation revealed a chronic osteomyelitic process and a prompt cure followed its evacuation. A mercurial injection for diagnostic purposes has little differential value in the tertiary phase of syphilis, as in many cases the system in this stage seems to be refractory to mercury and iodid.

83. **The Psychopathology of the Tuberculous.**—Liebe relates some of his experiences as director of a tuberculosis sanatorium and states that they could easily be duplicated by other sanatorium physicians, all showing a peculiar egotistic, irritable, spoiled-child attitude of many of the sanatorium patients, entirely contrary to what the same individuals presented in health. He regards these manifestations as part of the disease and states that the complaints and criticisms sometimes made of the institutions, sanatoriums, medical and other attendants, etc., belong also in this category.

88. **The Meiostagmin Reaction with Cancer.**—The experiences with 27 cases of cancer which are reported indicate that Ascoli's meiostagmin reaction may prove an instructive specific means of differentiating malignant disease. The reaction proved positive in all the cancer cases but positive only in 3 out of 27 cases of non-malignant affections.

Münchener medizinische Wochenschrift

July 12, LVII, No. 28, pp. 1481-1528

90 *Diagnosis and Treatment of Duodenal Ulcer before Perforation. (Nicht perforierte Duodenalgeschwüre.) J. P. zum Busch.
91 *The Hypophysis. A. Kohn.
92 *Combined Electric Treatment of Cancer. (Eine neue Behandlungsmethode bösartiger Geschwülste.) C. Müller.
93 Experiences with Spinal Anesthesia. B. R. v. Arlt.
94 *Local Anesthesia for Minor Operations by the General Practitioner. J. Rothmann.
95 *Congestion Dermatoses. (Zur Diagnose und Therapie der Stauungsdermatosen.) P. Strauss.
96 Durable Moving Picture Apparatus for Recording Movements. (Apparat für photographische Registrierung von Bewegungsvorgängen.) R. Ohm.
97 Radiologic Activator. (Ueber Kreuznacher Aktivatorkonstruktionen.) C. Ramsauer.
98 *Importance of Anesthetics to Reduce Appetite during Dietetic Treatment. (Anästhetika als Genussmittel und Arzneimittel für Diätkuren.) W. Sternberg.

90. **Duodenal Ulcer.**—This communication from London reports 14 patients with duodenal ulcer cured by operative treatment although one succumbed a month later to pneumonia. Another patient has required two operations since on account of ulcer in the jejunum. In 3 cases there was a concomitant gastric and duodenal ulcer. The operation was done under the diagnosis of cancer in some of the cases but in the others the trouble had been correctly diagnosed from the "hunger pain." This pain is ascribed by zum Busch to the opening of the pylorus when digestion is concluded, the passage of the chyme into the duodenum causing the characteristic pain at this time. In 5 other cases a duodenal ulcer was suspected but no operation was done; 3 of the patients have died, another is still living with much pain, the other has been lost to sight. He does not advocate surgical measures in the early cases but at once when there is recurrence or when the lesion may be regarded as chronic or there are hemorrhages and motor symptoms on the part of the stomach. The gastroenterostomy must always be followed by careful after-treatment, rest and dieting, as the operation alone does not heal the ulcer.

91. **The Hypophysis.**—Kohn reviews what is known to date in regard to the hypophysis and the interrelated ductless glands, remarking that it seems to be certain that the loss of the little parathyroids, not larger than a bean in size, is more serious for the general health than amputation of both legs. Research with extracts of the hypophysis have not given much information to date.

92. **Combined Electric Treatment of Cancer.**—Müller reports 18 cases of cancer in which he has applied a combination of Roentgen rays and high frequency currents with excellent effect.

94. **Local Anesthesia for Minor Operations by the General Practitioner.**—Rothmann recapitulates the details of the Schleich, Braun, Bockenheimer and other technics for local anesthesia and urges their more general use in office practice, enumerating the various minor lesions, boils, etc., for which these methods are particularly adapted.

95. **Skin Disease Due to Congestion.**—Strauss has been able to cure previously intractable skin affections by applying treatment based exclusively on relief of congestion in the parts—this cause for the trouble not having been suspected before. In one case a robust man of 34, a druggist, had been obliged to change his occupation on account of the severe itching eruption on both legs. It had tormented him for 25 years and had resisted all kinds of treatment, Roentgen rays, etc. Strauss diagnosed the case as a simple lichen maintained by varices in the deep veins, the superficial veins being apparently normal. The patient had applied for a course of Finsen treatment as a last resort, but Strauss dissuaded him from this and applied a compressing bandage after the legs had been elevated for an hour. Under this simple treatment for deep congestion with soothing applications to the superficial lesions, aggravated by scratching, the patient was completely cured in two months. He still wears a compressing bandage on his legs but the tissues feel soft and elastic and except for cicatricial traces there is nothing left of his old trouble.

98. **Anesthetics for Reducing Appetite and Thirst.**—Sternberg thinks that there is a field for the use of substances to dispel hunger in the course of dietetic restrictions as in treatment of gastric ulcer, etc. Cocain reduces hunger and thirst, and this is one of the principal uses for it among the African natives. In treatment of obesity and gastrointestinal ulcers, the abolition of subjective hunger and thirst would aid materially in the cure, and he thinks that this can be accomplished by administration of minute doses of cocain or chloroform water. The anesthetics may also come into play in treatment of dipsomania, bulimia, diabetes, gastrectasia, etc.

Wiener klinische Wochenschrift, Vienna

July 14, XXIII, No. 28, pp. 1025-1064

99 Tuberculosis in Suckling Guinea-pigs. (Ueber Tuberkuloseinfektion im Säuglinsalter des Meerschweinchens.) J. Bartel.
100 *Tetany in the Elderly. (Tetanie im höheren Alter.) W. Wirth.
101 Muscular Rigidity as Sign of Pulmonary Disease. (Zur Frage der Muskelrigidität als Zeichen zur Erkennung von Lungenkrankheiten.) O. Orszag.
102 Operation on the Hypophysis. J. Fein.
103 Determination of Degree of Autointoxication in Diabetes by the Simple Ronchese-Malfatti Test for Ammonia in Urine. (Zur Beurteilung der Azidosis auf Grund eines einfachen Verfahrens der Ammoniakbestimmung im Harne der Diabetiker.) E. Marcovici.
104 *Impressions of America. (Aerztliche Reiseeindrücke aus Nordamerika.) A. v. Eiselsberg.
105 Experiences with Spengler's I. K. M. Gantz.

100. **Tetany in the Elderly.**—Wirth reports three cases of tetany in elderly persons with a chronic stomach or bowel trouble, the tetany being evidently of gastric origin and proving fatal in each case. Dilatation of the stomach preceded the tetany and the latter did not always develop in a complete form. In every case of dilatation of the stomach he advises applying the tests for tetany and, with positive findings, operative treatment without delay. The parathyroid glands may have something to do with the tetany, he suggests, becoming insufficient under the influence of the autointoxication. There is reason to suppose, he adds, that these cases of incomplete tetany are more common than is generally recognized.

104. **Impressions of America.**—In the course of these travel notes Professor von Eiselsberg remarks that the Americans are masters in the art of anesthetization and still cling to ether as it behaves so magically in their hands that there is no ground for seeking to improve on it. He comments on the composure of the American surgeon which nothing apparently can disturb, and the avoidance of speaking during operations, referring to Dr. Brewer's sign language which has been devised for the attendants to avoid speaking. He cites as a curious and interesting fact that in one large office building in Chicago 150 physicians have their offices "without its coming to any differences between them." He adds that none of the surgeons in chief at the hospitals is paid for his services, but on the other hand none has to pay a license fee as in Austria. In his country the hospitals are all built and maintained by the state or community, and he comments with admiring envy on the many privately endowed hospitals in this country and the quarters for pay-patients in the various hospitals, remarking that rooms for pay-patients were included in the plans for reconstruction of the great Vienna city hospital but were afterward abandoned, for one reason, he was told, on account of the objections of the general practitioners. In America, he tells his readers, the practitioners

never objected to this provision for pay-patients, he believes, and there would certainly have been opposition if it had conflicted in any way with any professional interests. The bond between the members of the profession is very close and any infringement of the rights of other members is rigorously punished (*Es ist das Gefühl der Kollegialität ein sehr feines*). Thus the American Medical Association, he continues, has been able with great energy and the best success to attack medical advertisements in the daily papers; one daily paper gets even, however, for the loss of this advertising patronage by printing almost daily communications from the camp of the antivivisectionists. He comments with astonishment on the fact that examination by a state board is required for practice in each separate state and that the right does not extend beyond the borders of the state, saying that when von Pirquet was called from Vienna to Baltimore as professor of pediatrics he had to take the state examination before being allowed to enter on his work. Visits to the leading surgeons are described at length and special points learned from them are emphasized. In conclusion he advises European physicians, and especially surgeons, to take a trip occasionally to America for post-graduate work and inspiration. American surgeons, to say the least, he adds, are abreast with the best in Europe so far as technic is concerned, and the scientific life there is so earnest and so active in the various scientific institutes and it is so stimulated and facilitated by the magnificent endowments, that there can be no doubt that in these institutes also the American colleagues keep pace with the best in Europe. Science and humanity can only benefit by this friendly rivalry between the various nations.

Zeitschrift für klinische Medizin, Berlin

LXX, Nos. 5-6, pp. 359-507. Last indexed June 4, page 1914

106 Tenacity of Cellular Activity and its Relation to Pathology. (Ueber die Tenazität der Zelltätigkeit und ihre Beziehungen zur Pathologie.) W. Leube.

107 Roentgen-Ray Examination of the Peristalsis of the Colon. E. Stierlin.

108 Digitalis and Hypertrophy of the Heart. (Digitalis und Herzhypertrophie.) A. Caro.

109 Significance of the Dicrotic Pulse after Experimental Administration of Amyl Nitrite. (Bedeutung des dikroten Pulses nach Versuchen mit Amylnitrit.) A. Levy.

110 Behavior of Blood Pressure during Recuperation from Muscular Exercise. (Das Verhalten des Blutdrucks beim Menschen während der Erholung von Muskelarbeit.) B. Fantus and R. Staehelin.

111 Cardiac Neuroses and Conditions Suggesting Exophthalmic Goiter and their Different Behavior under Functional Tests with Epinephrin. (Ueber Herzneurose und Basedowoid und ihr verschiedenes Verhalten gegenüber der Funktionsprüfung mit Adrenalin.) B. Aschner.

112 Research on the Viscosity and Gas Content of Human Blood. (Viskosität und Gasgehalt des menschlichen Blutes.) H. Determann and F. Weil.

113 The Lung Capacity in Disease. (Untersuchungen über die Lungenfüllung bei Krankheiten.) A. Bittorf and J. Forschbach.

114 *Three Hundred and Eighty-three Cases of Bubonic Plague. (Zusammenfassende Betrachtung der 383 Pestfälle in Osaka während der letzten vier Jahre.) M. Masuyama.

114. **Treatment of Plague.**—Masuyama states that only 4 recovered out of 163 patients with bubonic plague treated by the ordinary medical measures alone, and in these 4 the suppurating bubo opened spontaneously. In 82 cases in which the bubo was enucleated or merely incised, 47 recovered, 28 of the 57 with enucleation and 25 with incision alone. Only 9 recovered out of 89 patients treated with serotherapy alone, but serotherapy supplemented by incision as soon as there was fluctuation in the bubo was followed by recovery in 78.1 per cent. of the 32 patients treated in this way, and by recovery of 31.2 per cent. of the 32 treated by serotherapy and enucleation. Japanese antiplague serum was used, and in large doses.

Zentralblatt für Chirurgie, Leipsic

July 16, XXXVII, No. 29, pp. 953-976

115 Sterilization of the Hands. (Zur Händedesinfektion.) O. Langemak.

Gazzetta degli Ospedali e delle Cliniche, Milan

July 10, XXXI, No. 82, pp. 857-872

116 *Fat Embolism from Severe Burns. (Importanza dell'embolia adiposa, e delle alterazioni che si hanno nel sangue per spiegarci il meccanismo di morte rapida da scottatura.) G. Pacinotti.

July 12, No. 83, pp. 873-880

117 *Syphilis and Acute Infectious Diseases. C. Nicolini.

July 14, No. 84, pp. 881-888

118 Artificially Induced Pneumothorax in Case of Pulmonary Tuberculosis. R. Ferrario.

116. **Fat Embolism from Burns.**—In the case of fatal scalding reported by Pacinotti there was evidence of fat embolism probably responsible for the early death.

117. **Syphilis and Acute Infectious Disease.**—Nicolini relates the favorable influence in two cases of mercury given in the course of typhoid coming on about a year after syphilitic infection. The mercury did not aggravate the intercurrent infection while it seemed to modify favorably the syphilitic soil on which the infection was developing.

Ugeskrift for Læger, Copenhagen

July 7, LXXII, No. 27, pp. 803-828

119 Comparative Experiences with Various Methods for Examination of the Sputum. (Om Værdien af forskellige Homogeniserings- og Sedimenteringsmetoder til Paavisning af Tuberkelbaciller i Expektorat.) G. Jørgensen. Commenced in No. 26.

Books Received

All books received are acknowledged in this column and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. A selection will be made for review in the interests of our readers and as space permits.

EDEMA. A Study of the Physiology and the Pathology of Water Absorption by the Living Organism. By Martin H. Fischer, Professor of Pathology in the Oakland School of Medicine, Oakland, California. The 1909 Nathan Lewis Hatfield Prize Essay of the College of Physicians of Philadelphia. Republished with the consent of the Board of Trustees from the transactions of the college. Cloth. Price, $2 net. Pp. 209, with illustrations. New York: John Wiley & Sons, 1910.

HOOKWORM DISEASE. Etiology, Pathology, Diagnosis, Prognosis, Prophylaxis, and Treatment. By George Dock, M.D., Professor of the Theory and Practice of Medicine, Medical Department Tulane University of Louisiana, New Orleans, and Charles C. Bass, M.D., Instructor of Clinical Microscopy and Clinical Medicine, Medical Department Tulane University of Louisiana, New Orleans. Cloth. Price, $2.50. Pp. 250, with 50 illustrations. St. Louis: C. V. Mosby Co., 1910.

INDEX-CATALOGUE OF MEDICAL AND VETERINARY ZOOLOGY. Part 28, pp. 2169-2250 (Authors: Sim to von Stenitzer.) Part 29, pp. 2251, 2326. (Authors: Stenroos to Szymanski). By C. H. Wardell Stiles, Ph.D., Consulting Zoologist, Bureau of Animal Industry, and Albert Hassall, M.R.C.V.S., Assistant Zoologist, Bureau of Animal Industry, Bureau of Animal Industry. Bull. 39, U. S. Dept. of Agric. Paper. Washington: (Superintendent of Documents) Government Printing Office, 1910.

MEDICAL SERVICE IN CAMPAIGN. A Handbook for Medical Officers in the Field. By Major Paul F. Straub, Medical Corps (General Staff) United States Army. Prepared under the direction of the Surgeon-General, United States Army, and published by authority of the War Department. Morocco. Price, $1.50. Pp. 164, with illustrations. Philadelphia: P. Blakiston's Son & Co., 1910.

THE DISEASES OF CHILDREN. By James F. Goodhart, M.D., Consulting Physician to the Evelina Hospital for Sick Children. Ninth Edition. Edited by George F. Still, M.D., Professor of Diseases of Children, King's College, London. Cloth. Price, $5. Pp. 931, with 34 illustrations. Philadelphia: P. Blakiston's Son & Co., 1910.

ARBEITEN AUS DEM PHARMAZEUTISCHEN INSTITUT DER UNIVERSITÄT BERLIN. Von Dr. H. Thoms, Professor und Direktor des Pharmazeutischen Institutes der Universität Berlin. Volume VII. Comprising the work of 1909. Cloth. Price, 8.50 marks. Pp. 312, with illustrations. Vienna: Urban & Schwarzenberg, 1910.

TRANSACTIONS OF THE SEVENTH ANNUAL CONFERENCE OF STATE AND TERRITORIAL HEALTH OFFICERS WITH THE UNITED STATES PUBLIC HEALTH AND MARINE-HOSPITAL SERVICE. Washington, D. C., June 2, 1909. Cloth. Pp. 86. Washington: (Superintendent of Documents) Government Printing Office, 1910.

PROCEEDINGS OF THE THIRTY-SECOND ANNUAL MEETING OF THE MISSOURI PHARMACEUTICAL ASSOCIATION. Held at Maryville, June 14-17, 1910. Constitution and roll of members. Missouri Board of Pharmacy Annual Report and Official Notice. Paper. Pp. 177, with illustrations.

TRANSACTIONS OF THE ROYAL ACADEMY OF MEDICINE IN IRELAND. Vol. XXXVIII. Edited by James Craig, M.D., General Secretary, Physician to the Meath Hospital and County Dublin Infirmary. Cloth. Pp. 490. Dublin: John Falconer, 53 Upper Sackville St., 1910.

STUDIES IN RELATION TO MALARIA. By Samuel T. Darling, M.D., Chief of Laboratory of the Board of Health, Department of Sanitation, Isthmian Canal Commission. Paper. Pp. 38. Washington: (Superintendent of Documents) Government Printing Office, 1910.

TWENTY-FIRST ANNUAL REPORT OF THE STATE BOARD OF HEALTH OF FLORIDA, 1909. Approved by the Board in Annual Session Feb. 8, 1910, Jacksonville, Fla. With Vol. IV (1909) Florida Health Notes. Paper. Pp. 216, with illustrations.

REPORT FOR THE FIFTH FISCAL YEAR OF THE NATIONAL ASSOCIATION FOR THE STUDY AND EDUCATION OF EXCEPTIONAL CHILDREN, April, 1910. Paper. Pp. 26. Registered office "Watchung Crest," Plainfield, New Jersey.

GYNECOLOGICAL DIAGNOSIS. By Walter L. Burrage, M.D., Fellow of the American Gynecological Society. Cloth. Price, $6. Pp. 656, with 207 illustrations. New York: D. Appleton & Co., 1910.